Determinants of Foreign Direct Investment in Sierra Leone

by

Mohamed Barrie

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Faculdade de Economia, Universidade do Porto

Supervised by:

Prof. Miguel José F. P. Reis da Fonseca

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Biographic note

Mohamed Barrie was born in Mokanji, Moyamba District, in the Southern Province of Sierra Leone.

In 1999, he concluded his secondary education at Ahmadiyya Secondary School in Bo, Southern Sierra Leone, and in the following year started his undergraduate degree in the Department of Economics and Commerce at Fourah Bay College, University of Sierra Leone. He received the Bachelor of Social Sciences degree in Economics in 2004.

Three years following his graduation, he joined the Audit Service Sierra Leone, (the Supreme Audit Institution promoting accountability and good governance), where he initially participated in financial and later in performance audits. As a trained performance auditor of that institution, he has carried out a great deal of research aimed at providing an objective investigation to assisting the management of Ministries, Departments and Agencies of the Sierra Leone government to improving their operational performance.

In 2013, he was granted study leave to pursue a one-year programme leading to the award of Master of Arts degree in Economic Policy Management at the University of Ghana. A year after his graduation, he started his Master's degree in Economics, in the Faculty of Economics at the University of Porto, where further audit training skills has been acquired on 'University Social Responsibility Auditing'.

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Abstract

Foreign direct investment (FDI) has been recognized, and most notably by the United Nations Conference on Trade and Development, as a major force shaping globalization. Consequently, the developed as well as the developing countries have been competing to attract it. As for the latter, some of the authors have targeted some African and Asian countries, while other studies are regionally based, sub-regional and country-specific. However, in Sierra Leone there is a dearth of research on the topic, so this study aims to examine the potential determinants of FDI, and as private sector development has been a priority for the government, the adoption of a reviewed investment framework with a view to formulating an investment policy would necessarily entail this analysis.

Based on the Eclectic paradigm as the main theoretical framework, the Bounds testing approach to cointegration was employed, using annual time series data for the period 1980-2015. To determine the order of integration of the variables, we employed the Augmented Dickey-Fuller and the Phillips-Perron unit root tests.

The results confirmed the evidence of a long run relationship between FDI and its determinants, that was further confirmed by the negative and significant effect of the error correction term with FDI. Furthermore, we found that trade openness, credit to private sector, natural resources endowment, infrastructural development and the past levels of FDI are positively correlated with inward FDI, while inflation and the civil war have impeded foreign investment over the sample period.

This study pretends to be relevant to policy makers in Sierra Leone, in order to induce a possible policy intervention aimed at stimulating and sustaining FDI, and also to the potential foreign investors who may wish to choose that country as destination.

JEL-codes: F21, C32, O55

Key-words: Foreign Direct Investment, Sierra Leone, Time Series, ARDL Model, Causality, Cointegration

Contents

List of tables

List of figures

Introduction

As Foreign direct investment (FDI) is a key force in the globalization process, both developed and developing nations have been competing to attract significant inflows of FDI, considering its positive impact on the country's employment, economic growth and development (UNCTAD, 2014).

The official data on FDI was firstly reported by the United Nations Conference on Trade and Development (UNCTAD) in 1970, a year in which global FDI flows accounted for US$ 13.26 Billion, approximately, while just before the global financial crisis of 2008-2009, total global FDI flows reached about US$ 1.90 Trillion. After this period, the world has witnessed an increase of global FDI flows, so that in 2015, it stood at US$ 1.76 Trillion. Over the years, developed countries have been the major recipients of FDI inflows, until 2012, when according to the World Investment Report (2013), the developing countries accounted for a record of 52 percent of the global FDI inflows. Despite that increase of global FDI inflows to developing countries, Africa has not been an attractive region compared with others, like Asia. For instance, the UNCTAD data shows that, between 1990 and 2015, Africa's share of FDI inflows into developing economies declined from 8.2 percent to 7.1 percent respectively, while in the same period Asia's share increased from 66.3 percent to 70.7 percent. Globally, the African and Asian continents accounted for about 9.6 percent and 6.4 percent, respectively, of FDI flows in 1970. However, though Africa's share declined to 4.6 percent in 2009, Asia recorded an increase of 27.5 percent in the same period. Furthermore, at 2015, Africa and Asia accounted for 3.1 percent and 30.7 percent of global FDI shares, respectively.

In this regard, several empirical studies, in most cases using different methodologies, explanatory variables and proxies, have been carried out to identify the determinants of FDI both in developed and developing countries. In some of those analysis, the authors have focused on cross-country studies whilst others are country-specific studies. Over the years, in the African context, it is clear that policy makers have adopted various strategies, including the reviewing of investment related laws, setting up of investment and export promotion institutions, providing investment incentives schemes and guarantees, and the signing of international investment treaties, with the goal of attracting FDI in their countries.

The situation in Sierra Leone was however different. Whilst other African countries were in a process of reforming their private sectors for FDI attraction, the country was in turmoil, caused by a civil war, which led to a further slowdown in economic growth. Moreover, despite several empirical analyses about FDI on developing countries, located in Africa or Sub-Saharan Africa, the evidence suggests that limited research has been done on this topic in the case of Sierra Leone. For instance, in one of such studies, Bende-Nabende (2002) included Sierra Leone in his co-integration analysis of 19 countries in Sub-Saharan Africa, focusing on macro locational determinants of FDI, while Sesay (2015) has carried out a research on the determinants of FDI in that country, that was limited to few macroeconomic variables.

By recognizing the significant role of FDI in terms of promoting economic growth and reducing poverty, particularly in recent years, the Sierra Leone government has shown commitment to reforming the private sector. For instance, His excellency President Ernest Bai Koroma states ''I have an unshakeable belief that the future prosperity of our country lies in the hands of the private sector…if Sierra Leone is to fulfil its economic potential''[1]. In addition, President Koroma routinely states that Sierra Leone's economic growth ''should be, and indeed, will be driven by the private sector, rather than solely through public sector activities and development assistance''[2]. In line with that commitment, significant steps have been taken, such as adopting some policy reforms and economic liberalization.

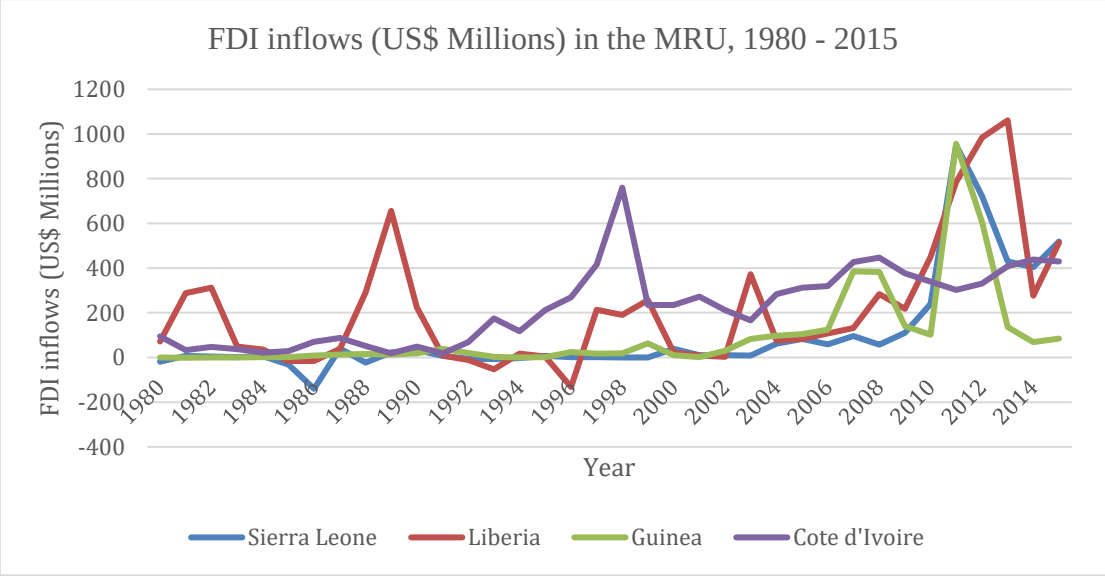
Although the evidence indicates an improvement in Sierra Leone´s economic performance, the economy has many challenges to overcome. For instance, in addition to the low level of savings, the country's investment rates are relatively lower than most of those countries in the region. Although the International Monetary Fund report (2016) highlights domestic financing as the most important source of financing risk, as it was noted in the African Development Bank report (2013), the ratio of domestic revenue to gross domestic product in Sierra Leone is comparatively lower than the average of Sub-Saharan Africa. The country has been largely dependent on donor support, however its total external debt has been increasing and foreign aid has declined, over the years, so

[1] Private Sector Development Strategy for Sierra Leone, 2009 – 2014, pp.2
[2] Sierra Leone Investment Climate Statement, 2013, pp.5

that a stable alternative and a dependable source of external finance is needed to boost the economy.

Like many countries in Western Africa, Sierra Leone is endowed with enormous growth potential and resources but, regardless of that, the country has not been successful to attract significant inflows of FDI. Considering the international Doing Business ranking, the evidence suggests that, in comparison with other countries, Sierra Leone should do more to become an attractive destination to foreign investors, particularly in areas like starting a business, getting credit, protecting investors and trading across borders. The official FDI data also shows that even within the Mano River Union (MRU) of which Sierra Leone is a member, the country's FDI inflows have been very low compared to Guinea, Liberia and Côte d'Ivoire, as shown by the figure below.

Figure 1 - FDI inflows (US$ Millions) in the MRU, 1980-2015



Source: Author's computation

This analysis is relevant because, in diverse ways, FDI can impact a host country's economic growth prospect. More specifically, ''FDI is a key driver of international economic integration. With the right policy framework, FDI can provide financial stability, promote economic development and enhance the wellbeing of societies''[3]. Indeed, FDI is noted for its perceived positive contributions to host countries' national development, as it increases the economic integration into the global market, allowing

[3] OECD Benchmark definition of foreign direct investment, 4th edition, 2008, pp. 3

the transfer of technological knowledge and a higher competition (Forte and Moura, 2010). In addition to the financial resources associated to FDI, we can also say that, through training programs, the local counter-parts of foreign firms can benefit from their managerial experience, entrepreneurial and technological skills (Todaro and Smith, 2012).

Given the present situation in Sierra Leone, and based on these different contributions of FDI, it is quite important to study its potential determinants in the country in analysis, because the adoption of a reviewed investment framework with a view to formulating an investment policy would necessarily entail this analysis. In this regard, the present dissertation aims to provide an empirical evidence of the long-run and short-run relationships between FDI and its determinants in Sierra Leone and to analyze the trend of FDI and macroeconomic development, in order to allow some possible policy recommendations aimed to improve the country's investment environment. To achieve these goals, the study seeks to find out what are the potential determinants of FDI, to what extent does the past level of FDI influences foreign firms' actual decisions, and what measures have been taken to improve this movement of capital into Sierra Leone.

The evidence suggests that the existing trade volume between Sierra Leone and the member states of the Economic Community of West African States (ECOWAS), and particularly the MRU, is very low, because intra-regional trade within the MRU represents less than one percent of total trade volumes (African Development Bank report, 2013). Therefore, as one of its policy objectives, the Sierra Leone government aims to improve its intra-regional trade, what could be achieved through FDI, as foreign firms may not only produce for the domestic market but also export to the neighboring countries. Given the positive linkages between FDI and domestic investment, the latter can be enhanced. In addition, as the domestic savings ratio is less than the investment ratio in the country, a resource gap has been created, that should be filled either by foreign borrowing, foreign aid, or FDI. However, in a context where, as already said, total external debt and foreign aid has been increasing and declining, respectively, the external flows of capital are needed not only for developmental projects, but also to minimize the external debt. Furthermore, considering the positive relationship between the investors' knowledge of the foreign market and the amount of resources applied there, we can conclude that the better they are informed about the market in terms of minimizing risks

and uncertainty, the more resources would be likely invested (Erramilli and Rao, 1990). As such, in addition to contributing to the existing literature, this study pretends to be relevant to policy makers in Sierra Leone, with a view to formulating possible policy intervention, aimed at stimulating and sustaining FDI, and also to the potential foreign investors who may wish to choose that country as their investment destination.

In this context, annual time series data for the period 1980-2015 will be used and will be sourced from several data bases, like for example UNCTAD and World Bank. Based on the main theoretical framework of Dunning's Eclectic Paradigm, the Bounds testing cointegration approach that uses the Autoregressive Distributive Lag (ARDL) model will be employed for the empirical analysis, since it is a more appropriate methodology for small sample size studies compared with other similar techniques, and moreover Dickey-Fuller and Phillips-Perron unit root tests will be employed to test the stationarity of the underlying variables.

Besides from this introduction section, the research consists of three chapters, where in the first one, we present the main concepts and theories regarding FDI as well as the empirical literature about this topic, followed by a critical review of the main contributions to the literature. In Chapter two, we develop an overview of macroeconomic and investment performance in Sierra Leone, which includes among other the analysis of regulatory and institutional framework, the strategies to attract FDI, and a discussion on FDI net inflows in the country. Chapter three discusses the methodology of the study and analyses the regression results. More specifically, we specify the regression model, describe the data and the underlying variables, provide a detailed description of the technique of analysis, and present and discuss the main empirical results. In the last section, we present the research conclusions, the limitations of the dissertation, and scope for further research.

Chapter 1: Literature review

1.1. Key concepts

‘’Multinational enterprise (MNE) is an enterprise that engages in foreign direct investment and owns or controls value adding activities in more than one country’’[4]. According to the Organisation for Economic Cooperation and Development, ‘’foreign direct investment reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor’’[5], while the United Nations Conference on Trade and Development (UNCTAD) defines foreign direct investment as an ‘’investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate)’’[6].

Considering these definitions, we can say that the production of goods and/or services in the host country that defines FDI can be done through the following ways: greenfield investments, mergers and acquisitions and joint ventures. In greenfield investments, in addition to the setting up of new operational facilities in the host country, the parent firm acquires new fixed assets, while through merger and acquisition, the multinational enterprise acquires both the local firm of interest and its production capacity. By other way, in a joint venture the foreign firm establishes an agreement with a local firm to set up a new enterprise and to achieve that, both parties contribute equally, and subsequently share the revenues, costs and control of their enterprise (Chaudhuri and Mukhopadhyay, 2014).

In this context, we should take in account that there are two main types of FDI: horizontal and vertical. In the first one, the parent company replicates the entire production process of the goods and/or services (home market) in another country,

[4] Exploring the link between foreign direct investment and multinational enterprises for developing innovative competitive strategies in India, pp. 147
[5] OECD Bench Mark Definition of Foreign Direct Investment, Fourth Edition 2008, pp48
[6] World Investment Report 2013, Methodological Note pp4

usually between developed countries. On the other hand, in vertical FDI (mostly investment from developed to less developed countries), the parent company fragments the stages of production in other countries (Africano and Magalhaes, 2007), allowing it to minimize costs and maximize profits

1.2. Main theories of FDI

1.2.1. Heckscher-Ohlin model

As one of the early theoretical approaches of FDI, the Heckscher-Ohlin model explains the capital movement in terms of the competitive advantages (endowment of capital and cost of factors of production) between the trading countries. As Faeth (2009) explains, amongst others, the model is based on two countries, two factors of production and two perfectly competitive goods and factor costs. The rate of return on capital is lower and higher where capital is in relative abundance and relative scarcity respectively. As such, with international trade, each country will export and import the relatively abundance and scare goods respectively, thereby leading to an equalization of factor prices., In the absence of international trade, capital is moved abroad where its returns are higher compared to the returns on labour until the equalization of factor price is attained.

1.2.2. The Hymer-Kindleberger hypothesis

Hymer (1976) was one of the earliest critics of the afore mentioned theoretical approach based on its inability to explain the foreign direct investment flows. Instead, he develops his FDI theory of Industrialization based on market imperfection. With a refinement of his idea, Kindleberger (1969) develops a theory based on monopolistic advantage. By undertaking investment abroad, both authors maintained that foreign firms face some disadvantages, compared with the domestic rivals, for instance lack of detailed information about the preferences of consumers, the legal system, and institutional framework in the host country. etc. Following investment, these disadvantages must be offset by the possession of some ownership (firm-specific) advantages that could be in

the form of economies of scale, cheaper sources of capital, marketing and management skills, brand names, or nonmarketable technology (Kindleberger, 1969)

1.2.3. Product cycle hypothesis

As its name suggest, Vernon (1966) describes the development of a product in three stages, namely the innovative, maturity and standardization stages of production. As Lall (1976) highlights, the product life cycle hypothesis provides an explanation relating to the interaction among some specific advantages (such as superior management, new process discovery and product differentiation) to determine the production, exportation and international investment process of oligopolistic firms.

In the first stage of production, with the relevant skills acquired through research and development activities in the home country (USA), the firm produces an innovative product to meet domestic demand. To offset the associated higher production costs at the initial stage, the products need to be differentiated from other products, which eventually leads to profits maximization.

In the second stage, as the product matures, production costs tend to be lower because of economies of scale, what motivates competitors to undertake similar production activities. As competition has a negative impact on the innovating firm's profits, it exports the product to another advanced economies (Europe). With increase demand of the product, the firm faces competition from the European rivals. At a lower production costs, these competitors start to produce similar products at a relatively lower price. To better compete with these rivals, and in order to offset its transportation and other related costs, the innovating firm sets up a subsidiary in Europe.

Finally, the third stage is characterised by the standardization of the product. With increase competition, the innovating firm considers the alternative of moving some of its production facilities to other locations to minimise cost, especially labour cost. Once the products are produced in a relatively low-cost location, they will be either exported to the United States of America or to any similar high cost economy.

1.2.4. Oligopolistic reaction hypothesis

Knickerbocker (1973) explains FDI based on an oligopolistic reaction of firms. To achieve this conclusion, the author carried out a test, based on a sample of 187 American multinational corporations. The result provides an explanation for the 'bunching up' of these firms into the foreign markets, suggesting that, to maintain their market share, firms in an oligopolistic industry adopt the strategy of 'follow the leader'(Agarwal, 1980).

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1.2.5. Internalization theory

The internalization theory lends support to the theory of the firm that was earlier discussed by Coarse (1937). In the latter, its author compared some transaction costs among firms and due to market failures, suggested that firm's efficiency would be possible if some of its specific functions are internalized. With this information, Buckley and Casson (1976) reviewed the internal production processes of some firms. As their examination revealed an evidence of market failures, they suggested that firm's efficiency can be best achieved by internalizing its intermediate products (like knowledge). In their view, market imperfections which result in internalization occur when: a long-time lag is needed to coordinate resources, price discrimination is needed for the efficient exploitation of market power, unstable bargaining situations are produced by a bilateral monopoly, either the purchaser cannot properly determine the sale price of the commodities or public goods are involved, the interventions of government in foreign markets create incentives for transfer pricing. In addition, they stated that the decision to internalise is contingent upon industry, region, nation and firm specific factors. They further argued that internalization is very likely to occur in markets which are involved in perishable agricultural and intermediate products, including raw materials (geographically concentrated).

As Agarwal (1980) highlights, the process of internalization in foreign markets leads to FDI, which is maintained until its advantages and disadvantages are equalized at the margin.

1.2.6. Currency based theory of FDI

Aliber (1970) explains the theory based on the relative strength of home and foreign currencies. In his view, the cost of borrowing money from foreign financial markets varies with the expected risks connected with the borrower's currency. Thus, the higher the risks associated with the borrower's home currency, the higher the costs of borrowing from the foreign financial markets. He therefore distinguishes between 'harder' and 'softer' currencies, and believes, that makes it is possible for foreign firms from harder currency countries to have some advantages over the host firms in softer countries. As the possibility exists for the former to borrow money at a lower rate of interest in the countries with softer currencies compared with their domestic firms, these firms then take advantage of the same flow of expected earning at a higher rate of return. Thus, the strength of the investor's home country currency is a key contributing factor to investing abroad – and countries with 'harder' and 'softer' currencies are characterised by FDI home and host countries respectively

This theory has been criticized as it just partially explains foreign direct investment inflows. As Lall (1976) notes, Aliber's theory does not seem to be particularly relevant in developing countries where capital markets are either absent or highly imperfect, and coupled with heavily regulated foreign exchanges. Other critics of his theory, such as Buckley and Casson (1976), although acknowledged its relevance in providing explanation of FDI by American firms into Europe stated that, it provided no explanation about the rise of European and Japanese multinational enterprises.

1.2.7. The Eclectic paradigm

Dunning (1979) criticized the existing literature at that time, especially the Hymer-Kindleberger, Product life cycle and Internationalization hypotheses because its authors did not provide a detailed explanation on the motive of international production. As such, to develop a general and a comprehensive theory, Dunning (2002) (cited in Forte et al., 2011) integrated the internalization and traditional trade theories in his theory of international production which is generally known as the eclectic or OLI paradigm. The author argues that FDI will occur when three conditions are fulfilled. In other words, the

investing firm must have ownership (firm-specific) advantages, (like economies of scale, cheaper source of finance, marketing and managerial skills, government protection, patented technology), internalize and utilize such advantages in combination with some of the host country's factor determinants like natural resources, investment climate, political stability, infrastructure, economies of scale, low costs of transport and communications (Dunning, 1979).

1.2.8. New trade theory

The new trade theory is an extension of the theoretical models of industrial organization and internalization, combining the ownership (such as knowledge capital), and location advantages (such as low trade costs) with technology and factor endowments of the host country. So, it provides an alternative approach of investigating the relation between foreign investment and the investing firm (Faeth, 2009), comprising Horizontal, Vertical and Knowledge Capital models.

Markusen (1984) is one of the pioneers of the Horizontal FDI model, whose explanation was based on a company-level scale economies, The model was extended and refined by Hortsmann and Markusen (1992) whose analyses was based on two countries, one homogenous product and imperfect competition. It was further refined by Brainard (1993b) on the assumption of a two-sector and two-country model, where, based on a trade-off between the proximity and concentration advantages, firms in the differentiated goods sector choose between exporting and FDI. It is important to note that the Horizontal FDI model is motivated by the avoidance of trade costs or the accessibility to an international market (to be served nationally), and further it is based on the following predictions: similar countries (in terms of size), market size, factor endowments, existence of transport costs, and company-level scale economies.

The Vertical FDI model was developed by Helpman (1984, 1985) and extended by Helpman and Krugman (1985). Unlike the Horizontal FDI model, the existence of the Vertical FDI model, also known as the Factor – Proportions Hypothesis is based on different factor endowments, and the presence of low transport costs and tariff barriers.

The Knowledge Capital model which was developed by Markusen et al. (1996) and Markusen (1997) is a combination of the key characteristics of the Vertical and

Horizontal FDI models. It is based on a 2*2*2 framework, representing two homogenous products, two factors of production (skilled and unskilled labour) and two countries (home and foreign) respectively. By combining the horizontal and vertical motivations for FDI with a view to identifying the type of the firm (horizontal or vertical) based on the country's features, Markusen (1997) noted that while horizontal FDI predominates when there is similarity in market size and relative factor endowments including transport costs, vertical FDI is evidenced in the case of differences in relative factor endowments with low trade costs.

1.2.9. Institutional approach

The institutional perspective of FDI suggests that foreign firms operate in a complex, risky and sometimes conflicting environment (Francis et al., 2009). In line with this perspective, Faeth (2009) considers FDI as either a game of two players representing the foreign firm and the host country's government or as a contest between host countries competing to attract FDI.

Recognizing the impact of the institutional environment of the host country, Wilhelms and Witter (1998) developed an Institutional FDI Fitness Theory, which is referred to the ability of a country to attract, absorb and retain FDI. The authors argued that the theory is relevant to examining the macro, meso and micro determinants of FDI. It further stresses on the significant role of the host country's government to attract FDI inflow. Based on their conclusion, especially in the African context, that FDI is driven by institutional (through government's action) rather than the traditional factors, the theory was focused on four types of institutions – government, markets, education, and socio-culture, represented by (economic openness, strong rule of law, low corruption), (low taxes, credits and energy availability, high trade volume), (human capital), and (degree of receptiveness) respectively.

1.3. Empirical literature

Considering the empirical literature about this topic, we should note that it was noted that, some of the authors have targeted developing countries, for instance some

African and Asian countries, while other studies are regionally based (e.g. Africa), sub-regional (e.g. West Africa) and country-specific (e.g. Nigeria). In line with this, the empirical studies that will be presented in this section are exclusively based on developing countries taking into account the influence of trade openness, financial sector development, human capital, infrastructural and institutional factors.

1.3.1. Studies based on developing countries

Based on the Institutional FDI Fitness Theory developed by these authors Wilhelms and Witter (1998) explored the determinants of net FDI inflows in 67 emerging economies over the period 1978-1995. The study was exclusively focused on country-specific factors, and the econometric estimation identified government and market variables as the most significant determinants of FDI. By governmental fitness, the authors refer to an open economy with minimal trade and exchange rate controls, strong rule of law, and low corruption, while market fitness is characterized by the availability of credit and energy, low taxes, high trade volumes and high urbanization. In this context, the researchers highlighted the relevance of the human factor and since FDI is not determined by factors such as, population and market size, every country can take advantage of it and increase its flow of FDI.

Youssef et al. (2001) investigate the determinants of FDI flows to 36 developing countries from Africa, Asia and Latin America over the period 1980-1994. The focus of this study was to highlight the role of human capital in determining FDI inflows to developing countries, as well as factors like trade openness, market size macroeconomic stability, availability of energy and labour and past changes of FDI inflows.

Based on a sample of 36 developing countries, of which 12 were in MENA (Middle East and North Africa), Mohamed and Sidiropoulos (2010) showed the significant role of institutional factors in determining FDI inflows. The authors aimed to investigate whether the influential factors of FDI in MENA countries are similar to those in other developing countries. Using a panel data methodology over the period from 1975 to 2006, their estimation identified market size, government size, natural resources and institutional factors as the main FDI determinants in that region, while the external factors include global liquidity and trade variables. In conclusion, policies should be aimed at

removing trade barriers, developing the financial systems, minimizing the corruption level, improving the policy environment and building the appropriate institutions, including the reduction of government size and macroeconomic instability.

1.3.2. Regional based studies

Taking into account the regional based studies, the main conclusion is that, FDI is not only determined by macroeconomic variables, hence various authors have shown the relevance of institutional factors like liberalization polices.

In a sample of 29 Sub-Saharan African (SSA) countries in the period 1990-1997, Morisset (2000) showed that based on the policies adopted (that include trade liberalization reform, international investment treaties, privatization programme, updating mining and investment codes, priority projects with multiplier effects on other investment projects, and image building effort to improve their business environment), Mali, Mozambique, Namibia and Senegal attracted more FDI inflows than countries with abundant natural resources (Congo and Zimbabwe) and/or bigger domestic markets (Cameroon, Kenya and Congo).

In turn, export-orientation and FDI liberalization policies were among the most dominant long run determinants of FDI in the study of Bende-Nabende (2002), that employed a co-integration analysis on a sample of 19 countries in Sub-Saharan Africa between 1970 and 2000. Based on the results, other potential determinants of foreign investment include, market growth, real exchange rates, market size and openness of the economy. As for real wage rates and human capital, the result was inconclusive, what the author attributes it to data limitation for some of the countries. In conclusion, African countries should undertake to improving, liberalizing and broadening their macroeconomic management, FDI regimes, and export bases respectively.

By employing cross sectional data on 71 developing countries for the period 1988-1997, Asiedu (2002), aims to find out whether potential FDI determinants in developing countries differ from those in Sub-Saharan Africa. The comparative analysis was mainly based on three explanatory variables. So, on investment return and infrastructure development were both found to be positively related to FDI to other developing countries, but negatively related to FDI to Sub-Saharan Africa. Further, though its impact

on FDI into Sub-Saharan Africa is less than other developing countries, trade openness is also found to be positive and statistically significant. Based on these results, the author concludes that this continent is heterogenous, and hence suggested the need for African countries to liberalize their trade regimes.

In a similar vein, Asiedu (2004) considers three policy-related variables (infrastructure development, openness to foreign investment, and institutional quality) to investigate the reasons for Africa's inability to attract FDI inflows comparing with other developing regions like Asia, despite reforming, improving and liberalizing its institutions, infrastructure and regulatory framework. The analysis reveals that, between 1980 and 1999, policy reforms in Africa are not in line with those implemented in other developing countries, what makes it less attractive. To reverse this trend, the policies should be designed in absolute and relative terms.

In a sample of 11 SSA countries, and using a panel data analysis for the period 1990-2003, Yasin (2005) studies the relationship between official development assistance (ODA) and FDI. The researcher notes that in addition to ODA, economy openness, exchange rate and growth rate of labor force have a positive and significant effect on FDI. On the other hand, the insignificant factors include GDP per capita growth rate, multilateral development assistance, composite risk level, and the political freedom and civil liberties index. Thus, to further enhance FDI inflows, policies should be aimed at improving the economic relationships with the donors.

Asiedu (2006) examines the impact of eight explanatory variables on FDI in SSA over the period 1984-2000. The results reveal that FDI is more attracted to those countries with big markets or higher natural resource endowment. Nevertheless, macroeconomic and political stability, trade openness, good infrastructure, educated labor force, efficient legal system, and less corruption also influence the level of FDI attraction. The author suggests that, in order to reverse this scenario, African countries with and without small markets and natural resources respectively should improve their institutions and restructure their investment framework.

In line with the previous researcher, the study of Naude and Krugell (2007) focused on the roles of institutions and geography in determining the FDI flows in Africa. By employing a dynamic one-step generalized method of moments estimator on panel data, those authors identified governance, inflation rate, investment and government

consumption as the influential factors of FDI, but neither marketing seeking nor re-exporting motives seem to influence inflows in Africa. Moreover, unlike geography that does not seem to have a direct influence on FDI, political institutions seemed to be a significant determinant in this context, specially political stability and good governance.

Yiheyis et al. (2015) assess the role of human capital on FDI flows into 35 Sub-Saharan African countries between 1980 and 2012. In addition to human capital, market size and economy growth, factors like access to coastline, natural resources, and major global economic shocks were found to play a key role in determining the inflows of FDI into the region. So, African policy makers should ensure that their policies are not only focused on attracting foreign investment, but should also consider the impact of those policies on the local investment activity. Further, to ensure an effective skill formation, there is need to learn from the policy experiences of Latin America and South-East Asia countries.

Finally, with a sample of 35 African countries, Kariuki (2015) employed a fixed effects model to examine the influential factors of FDI in the region over the 1984 to 2010 period. Based on the estimation, infrastructure and the indices of commodity price and world stock market and previous amount of FDI have a positive and significant effect on FDI. On the other hand, though political and financial risks variables have a negative effect on FDI, both are found to be insignificant. Consequently, according to the author, policy makers in Africa should ensure the existence of policies aimed at infrastructural development, trade openness, business and friendly environment.

1.3.3. Sub-regional based studies

Ajid (2014) analyzed the determinants of FDI in some of the Economic Community of West African States, particularly considering the roles of governance and human capital in the period 2002-2010. The analysis was based on panel data and estimated via pooled OLS, fixed and random effects models. The results revealed that per capita GDP, human capital, governance and infrastructural quality were the crucial factors determining FDI in the region. Thus, policy improvements should focus on good infrastructural development, improving human capital and governance structure.

Musonera et al. (2010) analyzed the determinants of FDI in the East African Community member states between 1995 and 2007. The analysis was based on the Institutional FDI Fitness model which identified economic, social, political, financial, human development, urban population, and market factors as the potential determinants of FDI in the region. In conclusion, the authors emphasize the important role of government institutions in designing and implementing policies related to the environmental factors, and suggest a further study to be done, employing a different approach, such as the extreme and bounds analysis.

1.3.4. Country-specific studies

The country-specific studies suggests that, based on different methodological approaches, the previous authors have generally examined the macroeconomic effects and considered few institutional factors influencing the levels of FDI in the respective countries.

EpSafar and Mtar (2015) aim to identify the determinants of FDI in Tunisia through a gravity model between 1980 and 2013. These authors identified the size of the host country's market, the economy openness, good infrastructure, political stability, geographic proximity, and skilled human capital as the significant factors attracting FDI in the country over the chosen sample of analysis. The main conclusions that arise from most of the following studies (despite using different methodological approach and scope of analysis) are in line with these.

Sesay (2015) employed a cointegration analysis to investigate the long run and short run macroeconomic determinants of FDI in Sierra Leone for the period 1990 - 2013. It was observed that while market size, exchange rate, trade openness and the availability of natural resources have a positive influence on FDI, factors like money supply, inflation rate and political instability have a negative impact in the long run. Based on the Error Correction Model, inflation, market size, availability of natural resources, and trade openness were identified as the main determinants of FDI. To ensure the attraction of FDI, the researcher proposes some policy recommendation so that government's strategy should be aimed at expanding the country's GDP, curbing inflation, strengthening the implementation of its reforms agenda and undertaking further infrastructure

development. As this empirical analysis was limited to few macroeconomic variables, the researcher also suggested a further study that would include financial sector development and corruption variables.

To investigate the factors which influence FDI into Zimbabwe, Sikwila (2015) uses a Flexible Accelerator model and an annual time series data between 1980 and 2012. According to the author, unlike the previous studies, this research considers the individual country's investment priorities, and based on the empirical analysis, the positive and statistically significant factors include output, economy openness, political stability and domestic investment, while the inflation rate was negative and statistically significant. Therefore, in order to ensure the sustainability of FDI especially in the manufacturing and mining sectors, it is of crucial importance for potential investors to form a joint venture with their local counterparts.

In turn, Adefeso and Agboola (2015) studied the long run relationship between FDI and its determinants in Nigeria, by employing a Residual-Based Engle Granger Dickey-Fuller Cointegration for the period 1970-2009. This empirical analysis shows that market size, trade openness, tax tourism ICT, oil sector, and mobile phone penetration component have a significant effect on FDI in the long run. Based on these results, the authors recommend that in addition to increasing budget to maintain the resources, the Nigerian government should ensure political and social stability. Regarding further research, they emphasized the need for an empirical study which would incorporate social and political index and corruption variables.

Lado (2015) employed a co-integration analysis in order to examine the potential determinants of FDI (long and short runs) into Sudan over the period from 1980 to 2011. Market size and the development level were significant both in long and short runs. On the other hand, while the infrastructure development level and financial sector development were found to be significant only in the long run, in the short run, factors such as inflation and economy openness were significant. As a recommendation, the researcher draws the attention of the Sudanese authorities on increasing the level of per capita GDP, enhancing growth and infrastructure level.

With a multiple linear regression model, Workneh (2015) studied the determinants of FDI into Ethiopia. Using an annual time series data over the period 1990-2011 period, the author considers five explanatory variables of which, inflation rate and trade openness

were found to be statistically significant but the insignificant factors include market size, infrastructure and human capital. The study recommends the implementation of sound fiscal and an outward looking growth strategy policies.

In their study on 'what determines FDI inflows to Nigeria', Danladi and Jennifer (2015) employed a co-integration analysis and an annual time series data covering the period between 1980 and 2013. As the authors identified GDP, interest rate, exchange rate, exports and imports as the determinants of FDI, they suggested that the Nigerian government should design policies aimed at creating a conducive investment environment and adopt policies which would encourage further investment into the productive sectors of the economy.

Poku et al. (2013) employed multiple regression analysis on a panel dataset over the period 1980-2011, and they identified natural resource endowment, trade openness, exchange rate, inflation and per capita GDP as the main determinants of FDI in Ghana. So, they concluded that the Ghanaian government's efforts in liberalizing the economy have resulted in significant FDI inflows.

Seetanah and Rojid (2011) uses an annual data set for Mauritius to analyze the determinants of FDI during the 1972 to 2006 period. By employing a differenced vector autoregressive model (DVAR), the author finds that wages, trade openness and the quality of labor are the most influential factors of FDI. According to that conclusion, the government should ensure that the labour costs are competitive (not above other recipient countries), and further implement policies to opening up of the economy into the global market.

Malefane (2007) investigates how FDI in Lesotho is affected by four explanatory variables, using time series data for the period 1973 - 2004. Based on a multivariate cointegration approach, the South African market size, export orientation and macroeconomic stability were found to be positively related with FDI, but political stability impacts negatively. In addition to implementing various investment programmes, the Lesotho government should improve in the short and medium terms both human capital and infrastructural development level and in the long-term should reduce corruption and political conflicts, providing insurance coverage to private investments.

Fedderke and Romm (2006) developed a structural analysis of the growth impact and determinants of FDI into South Africa for the period from 1962 to 1996. By means of a VECM structure, the results show that, market size, corporate tax and the economy openness have a positive impact on FDI, while wage costs and the political institutional structure have a negative impact on FDI. Their policy implications include the reduction of political risks, real wages, corporate tax rate, in addition to boosting growth and ensuring property rights.

To establish how capital flows could be affected by fiscal policy in South Africa, Schoeman et al. (2000) employed a long-run co-integration analysis, and among the explanatory variables were deficit/GDP ratio (representing fiscal discipline), and the relative tax burden on prospective investors. As the fiscal policy variables were found to have a negative effect on foreign direct investment, the authors suggested that by adjusting its fiscal policy, the South African government may be able to improve a business-friendly environment. Further, because of its impact on foreign direct investment, government should urgently address the high tax burden.

1.4. Integration and critical analysis of the different contributions to the literature

In the Hymer-Kindleberger hypothesis, the authors based their explanations of FDI on ownership or firm-specific advantages (possessed by the investing firms) that can only be exploited under conditions of imperfect market. Although they provided an alternative explanation of FDI to the previous literature, their hypothesis did not provide a detailed explanation of the subject matter. Indeed, if Hymer was the first to explain FDI under conditions of imperfect markets, he did not explain when and where such investment occurs.

So, the Product life cycle and Internationalization hypotheses attempted to provide explanations to when and where FDI occurs, and Vernon highlighted the relevance of technological and innovative differences between countries regarding FDI. The relevance of the host countries' policies was only evidenced in few theoretical frameworks, like for instance, internalization and eclectic paradigm. In the former, the authors recognized government's interventions in foreign markets, but did not explain

how such intervention would impact across the industries. On the other hand, the relevance of the host country's policies is evidenced in the locational advantages (country-specific factors) of Dunning's Eclectic Paradigm. It could be possible for an investing firm to possess some ownership advantages, however, without due regard to the relevance of the host country's factors/policies, it would be difficult or impossible to exploit those advantages in the host country.

We learnt from the theory of Oligopolistic Reaction that in a bid to maintain their strategic advantages, firms in an oligopolistic industry follow each other into international markets. Though it provides a relevant explanation for the concentration of firms in some areas, the theory neither tells us the reason that induce the first firm to invest abroad nor explains why the follower favors FDI to other alternatives (mode of market entry).

Among the several theoretical approaches, the Eclectic Paradigm (OLI framework), which combines ownership, location and internalization advantages, has been generally considered a better approach on explaining FDI (Faeth, 2009). Unlike the ownership and internalization advantages are (firm-specific), the locational advantages relate to the host country.

As Sierra Leone is characterized by social, economic and political factors that are captured in the locational advantages of the OLI paradigm, the present study will be based on this theoretical framework. The relevance of the locational advantages has been highlighted by UNCTAD, as factors that play a vital role on the host country's influence on FDI inflows (UNCTAD, 1998). Further, Wilhems and Witter (1998) argued that the relevance of industry and firm factors is dependent upon the host country's positive factors, as investment decisions can only be made when certain preconditions are met.

The review of empirical studies in previous section has shown that over the years, FDI inflows in developing countries depend not only on economic factors, but also on institutional factors. In this context, we should highlight that some of the authors did not provide any information as to why they conducted the studies (departing from previous studies) and what needs to be done (as a scope for further research). Based on the studies reviewed, the following table shows that 62% of them contributed to the literature and 38% of the authors did not. In addition, 77% and 23% represent respectively the percentages of authors who did not provide information for further research and those who did. In absence of this information, it will be very difficult to have a better

understanding of the FDI determinants in developing countries, and hence to design appropriate policies accordingly. Hence, if the journal articles are structured in such a way that would compel the authors to provide information on contribution to the literature and scope for further research, the future researchers would be in a better position to know what has been and needs to be done in their area of interest.

Table 1 - Contribution to the literature and suggestion for further research

Author (s) and date	**Researcher's contribution to the literature**	**Scope for further research**
Wilhelms and Witter (1998)	Yes	No
Schoeman et al. (2000)	No	No
Morisset (2000)	Yes	No
Youssef et al. (2001)	Yes	No
Asiedu (2002)	Yes	No
Bende-Nabende (2002)	Yes	No
Asiedu (2004)	No	No
Yasin (2005)	No	Yes
Asiedu (2006)	Yes	No
Fedderke and Romm (2006)	Yes	Yes
Malefane, (2007)	Yes	No
Naude and Krugell (2007)	Yes	No
Mohamed and Sidiropoulos (2010)	No	No
Musonera et al. (2010)	Yes	Yes
Seetanah and Rojid (2011)	Yes	No
Adefeso and Agboola, (2012)	No	Yes
Poku et al., 2013)	Yes	No
Ajid (2014)	Yes	No
Yiheyis et al. (2015)	Yes	No
Kariuki (2015)	Yes	No
Lado (2015)	No	No
Workneh, (2015)	No	Yes
Danladi and Jeniffer, (2015)	No	No
Sesay (2015)	No	Yes
Sikwila, (2015)	Yes	No
Epsfar and Mtar, (2015)	No	No

Source: Author's analysis

The evidence further suggests that, based on the values of the adjusted R-squared, the behavior of FDI in the target countries was not adequately captured in their econometric models. Indeed, in some of the studies, the estimated results showed that, the explanatory variables account for low percentages of FDI. In fact, in some, the value of R-squared was not even included in the estimation results like for instance, Schoeman

et al. (2000), Naude and Krugel (2007), Malefane (2007), and Bende-Nabende (2002), which makes it impossible to ascertain the extent to which the explanatory variables explain the changes of FDI.

The relevance of political and institutional factors as determinants of FDI were emphasized in the studies based on developing countries and Africa exclusively. However, the country-specific studies were mostly focused on economic factors, ignoring or paying less attention to the political and institutional factors. This evidence can be seen in the following table, which shows that, market size, economy openness, inflation, infrastructure and exchange rate (all economic factors) have been generally examined over the years. This suggests that, in addition to government policies, previous studies have ignored the relevance of institutional factors (corruption, governance, bureaucracy and transparency), that are key determinants of foreign firms' investment decisions. As the data were sourced from different sources (national and international), it may be that the authors were limited by the availability of data or simply considered these variables not relevant to attract FDI in the respective countries.

Table 2 - FDI determinants: country-specific studies

FDI determinant	Countries											%
	Su	Et	Zi	Ni		Tu	SL	Ma	Gh	Le	SA	
Market size	√	√	√	√	√	√	√	√	√	√	√	×	92
Trade openness	√	√	√	×	×	√	√	√	√	×	√	×	67
Inflation	√	√	√	√	√	√	√	×	√	×	×	×	67
Infrastructure	√	√	×	×	√	√	√	×	√	×	×	×	50
Exch. Rate	×	×	×	√	√	√	√	×	√	√	×	×	50
Lev. Of dev.	√	×	×	×	×	×	×	×	×	×	×	×	8
Human capital	√	√	×	×	×	√	×	√	×	×	×	×	33
Fin. Sec. dev	√	×	×	×	×	×	×	×	×	×	×	×	8
Nat. resource	×	×	×	×	√	√	√	×	√	×	×	×	33
Property right	×	×	√	×	×	×	×	×	×	×	√	×	17
Dom. Invest.	×	×	√	×	×	×	×	×	×	×	×	×	8
Tax	×	×	×	×	√	×	×	√	×	×	√	√	33
ICT	×	×	×	×	√	×	×	×	×	×	×	×	8
Ext. debt	×	×	×	×	√	×	×	×	×	×	×	√	17
Pol. instability	×	×	√	×	×	√	√	×	×	√	√	×	42
Money supply	×	×	×	×	×	×	√	×	×	×	×	×	8
Labor cost	×	×	×	×	×	×	×	√	×	×	√	×	17
Liberalization	×	×	×	×	×	×	×	×	√	×	×	×	8
Ex orientation	×	×	×	×	×	×	×	×	×	√	×	×	8
Indigenization	×	×	√	×	×	×	×	×	×	×	×	×	8
Int. rate	×	×	×	√	×	×	×	×	×	×	×	×	8
Exports	×	×	×	√	×	×	×	×	×	×	×	×	8
Imports	×	×	×	√	×	×	×	×	×	×	×	×	8
Population	×	×	×	×	×	√	×	×	×	×	×	×	8
Remoteness	×	×	×	×	×	√	×	×	×	×	×	×	8
Yield-int. diff	×	×	×	×	×	×	×	×	×	×	×	√	8
Risk index	×	×	×	×	×	×	×	×	×	×	×	√	8
Sanctions	×	×	×	×	×	×	×	×	×	×	×	√	8

Source: Author's analysis

The symbols √ and × represent the variables which were examined by the authors and those which were not, respectively. Furthermore, the abbreviations Su, Et, Zi, Ni, Tu, SL, Ma. Gh, Le and SA correspond to Sudan, Ethiopia, Zimbabwe, Nigeria, Tunisia, Sierra Leone, Mauritius, Lesotho and South Africa, respectively.

As the following table shows, the various authors that developed country-specific studies have in most cases employed the Johansen Cointegration technique to establish the long-run relationship between the dependent and the explanatory variables. In addition, apart from Adefeso and Agboola (2012), Seetanah and Rojid (2011), all the other authors have employed the Augmented Dicky-Fuller procedure for the unit root test. The evidence also suggests that most of those authors have not presented a

correlation matrix to show that a correlation test was done to know whether there was any form of multicollinearity between the variables.

Table 3 - Country-specific studies: unit root test and correlation matrix

Country / Author (s) and year	**Test**	
	Unit root	Correlation matrix
Sudan / Lado (2015)	Augmented Dickey-Fuller	No evidence
Ethiopia / Workneh, (2015)	Augmented Dickey-Fuller and Phillips-Perron	
Mauritius / Seetanah and Rojid (2011)		
Nigeria / Danladi and Jeniffer, (2015)		done
Nigeria / Adefeso and Agboola, (2012)	Augmented Dickey-Fuller	No evidence
Sierra Leone Sesay (2015)		
Zimbabwe / Sikwila, (2015)		
Tunisia / Epsfar and Mtar, (2015)	No evidence	
Ghana / Poku et al., 2013)		
Lesotho / Malefane, (2007)		
South Africa / Fedderke and Romm (2006)	Augmented Dickey-Fuller	No evidence
South Africa / Schoeman et al. (2000)	No evidence	

Source: Author's computation

The absence of correlation tests for multicollinearity as shown from the above table creates some doubt on the reliability of the regressions output and the robustness of the various econometric models.

While the present study is a country-specific one, it will differ from the previous studies in the following aspects. Unlike the Johansen Cointegration method, a different and a more appropriate methodology for small sample size studies will be employed – the bounds testing approach that was developed by Pesaran et al. (2001). To test for stationarity, instead of employing the Dickey-Fuller procedure alone, our study will also consider the Phillips-Perron test since it offers a promising alternative to that aforementioned (Phillips and Perron, 1988). To further fill the gap, as only few of the previous studies have considered various factors, and in line with the suggestion of the previous researcher on the determinants of FDI in Sierra Leone (Sesay, 2015), in addition to the economic and political factors, financial sector development determinants will also be considered in the empirical analysis.

Chapter 2: Economic and investment performance in Sierra Leone - an overview

2.1. Macroeconomic performance

With an average growth of 1.33% (as shown on the Table 4 below) in the 1980s, the Sierra Leone's Gross Domestic Product (GDP) Observed a decline of 2.29%, on average over the period 1991 – 2000. This negative performance can be attributed to the political instability in the country, due to the civil conflict and the military coup d'états in April 1992 and May 1997 that also affected negatively the level of activities in the major sectors (mining and agriculture) of the economy. However, that declining trend was reversed after the signing of the Lome Peace Accord between the government and the Revolutionary United Front in 1999, which resulted in a stable security situation.

Likewise, the government endorsed, in July 2001, an Interim Poverty Reduction Strategy Paper that was prepared in consultation with civil society. In addition, within the framework of the Poverty Reduction and Growth Facilities, in the same period the International Monetary Fund approved a financial package of US$ 130.84 million dollars to the country (Bank of Sierra Leone Bulletin, July-December 2001). Consequently, the economy grew at an average of 7.85% between 2001 and 2005, and inflation declined from 21.19% to 13.02% in the same period, as is evidenced by the following table.

Table 4 - Basic Macroeconomic indicators

Macroeconomic indicator	Period				
	1980 - 1990	1991 - 2000	2001 - 2005	2006 -2010	2011 - 2015
Real GDP growth (%)	1.33	-2.29	7.85	5.80	4.93
Exports of goods and services (% of GDP)	20.85	21.19	13.02	15.17	25.58
Imports of goods and services (% of GDP)	23.56	27.04	29.91	27.39	56.70
External balance on goods and services (% of GDP)	-2.71	-5.85	-16.88	-12.22	-31.12
Foreign reserves minus gold ((Millions of US dollars)	11.48	33.04	99.65	286.92	534.19
Net foreign assets (Billions of Leones)	-0.01	-2.74	-0.24	0.72	1.79
External debt (Millions of US dollars)	813.64	1334.90	1545.78	900.29	1237.49
Inflation rate	67.31	34.75	6.53	2.25	10.93
Money supply growth (%)	51.77	29.77	26.73	24.80	19.25
Real interest rate (%)	-15.05	2.83	3.96	11.44	8.22

Source: Author's computation from World Development Indicators

The evidence also suggests that, during all the period in consideration, exports of goods and services as a percentage of GDP were lower than imports, what provides an explanation for the unsatisfactory contribution of the external sector of the economy between 1980 and 2015. Although, we can say that its performance was better before and during the civil war (than occurred during 1991 and 2002) than on the post-war period. In fact, over the period 1980-1990, the external balance of goods and services recorded an average deficit of 2.71% of GDP, that increased in the subsequent period to 5.85% of GDP and worsened during the war period until reaching a negative value of 16.88%. The contribute of external balance to the country's growth has slightly improved between 2006 and 2010, while remaining negative, and finally reached its highest deficit value (31.12% of GDP) in the period 2011-2015.

Considering the foreign reserves minus gold (Millions of US dollars) of the country, it has been always positive. In fact, its average value over the period 2001-2005 has approximately tripled that of the period 1991-2000, which is also about three times higher than that of the 80´s. Between 2011 and 2015, it reached 534.19 million dollars, which is a value nearly twice of the value recorded in the 2006-2010 period. Unlike the foreign

reserves indicator, the war had a negative impact on the country's net foreign assets (Billions of Leones), although the empirical evidence suggests an improvement in its performance in the twenty-first century. Indeed, Sierra Leone recorded an increase in its external debt from the 1980s until 2005, and thereafter it declined to US$ 900.29 million between 2006 and 2010, due to the country's debt cancellation in 2007. However, following this period, the trend of external debt has been upward slopping and stood at US$ 1237.49 million over the 2011-2015 period.

2.2. Investment performance

2.2.1. Entry and establishment of FDI

In Sierra Leone, the entry and establishment of foreign investment is open in all sectors of the economy, except in one (services). In the services sector, and particularly the maritime and airport activities, foreign investors are exempt from participating in the facilities of clearing or forwarding air or sea freight cargo operations. On the other hand, foreign investment's entry into other services is conditional on satisfying certain criteria (depending on the investor's choice). This means that, foreign firms are required to have a minimum assigned capital (usually twice that of a domestic firm) or minimum years of experience in the relevant business, and usually depend of partnerships including joint ventures with Sierra Leoneans, as presented on the table 5 below (Sierra Leone: Investor's Guide, 2015).

Table 5 - Foreign investment entry limitations in the Services sector

Sector	Foreign investment limitations
Professional services	Partnerships
Other business services	Joint ventures
Internal waterway transport	
Rail transport services	
Transport auxiliary services (for instance customs house brokers)	
Insurance and insurance related services	At least ten years' experience with minimum capital (twice that of local firms),
Banking, including financial services related (excluding insurance)	Reciprocity treatment given to a local firm to invest in the foreign country, foreign bank's branches to hold a minimum assigned capital (twice that of the minimum prescribed for the local banks
Health and social services	Compulsory registration in the appropriate disciplines with qualifications recognized by the Ministry of Health and Sanitation

Source: UNCTAD, 2010

2.2.2. Regulatory and Institutional framework of investment activities

The legal basis for undertaking an acceptable form of investment activity in any of the economics sectors in Sierra Leone is provided by the Investment Promotion Act (IPA) of year 2004, whose section 4 states that ''any investor whether domestic or foreign may invest in any legitimate form of business enterprise''. Furthermore, the section 3 of the same Act highlights other additional regulations to the investment climate which are particularly applicable for investing in mines and minerals, banks, non-bank financial institutions, tourism, fisheries and other activities applicable to FDI.

The promotion of investment activities, as stipulated by the IPA of 2004, was previously carried out in the section two of the Sierra Leone Export Development and Investment Corporation (SLEDIC), which was established in 1993. In 2007, the SLEDIC was replaced by the Sierra Leone Investment and Export Promotion Agency (SLIEPA), following the enactment of the Sierra Leone Investment and Export Promotion Agency Act in the same year. As the country's investment lead agency, SLIEPA has the responsibility of not only promoting investment opportunities in this economy and export

of products, but also to identify and provide relevant information to the potential investors on all related issues (SLIEPA, Act, 2007).

2.2.3. Strategies to attract investment

Over the years, the Sierra Leone government has shown commitment to reforming the private sector with the purpose of enhance investment activities (domestic and foreign) in the country. By acknowledging that private sector-led growth underpins the main pillars of the Agenda for Prosperity, the government emphasis the need of removing the constraints in all sectors of the economy in order to encourage it (Sierra Leone's Third Generation Poverty Reduction Strategy Paper, 2013-2018). In line with this commitment, the government has adopted various strategies, ranging from reviewing and updating investment related outdated laws, and enacting new ones in order to modernize the investment framework, establishing incentives and guarantees for potential investors, and signing international investment treaties, with the goal of improving the country's investment climate (that are further discussed below).

In addition to providing the legal basis for the registration and incorporation of companies in the country, the Companies Act of 2009 created the Corporate Affairs Commission which manages the establishment of new firms in Sierra Leone and all related matters. Following the review of this regulation, it was amended in 2014 to streamline the company registration process. The procedures in registering a business have also been simplified after the enactment of the SLIEPA Act and the Registration of Business Act, in 2007. Furthermore, foreign investors are no longer required to obtain permission for foreign exchange transactions in the amended version of the General Law (Business start-up) Act of 2007, and the closure of a business has been easier through the enactment of the Bankruptcy Act of 2009 (UNCTAD, 2010). Moreover, the Investment Code of 2005 provides the legal basis of ensuring further protection for foreign firms as well as a non-discriminatory strategy (economic or industrial) against foreign investors, including free ownership or control, while the Income Tax Act of 2000 and the Income Tax Amended of 2004 also provide various incentives to encourage both domestic and foreign investment. Thus, the legislative review and update reflects the government's commitment to promoting investment and export development through the provision of incentives and guarantees to the potential investors.

The investment guarantee or protection applicable to foreign investors tends to vary depending on the nationality of the investor, which may be categorized into citizens of the member states of the Mano River Union (MRU), Economic Community of West African States (ECOWAS) and the rest of the world. In this context, there is absolutely no distinction in terms of 'national treatment' between the MRU citizens and the Sierra Leoneans, and thus these nationals are not subject to the restrictions found in Sierra Leone's schedule to the World Trade Organization's General Agreement on Trade in Services. At the regional level, national treatment is further granted to ECOWAS nationals, but with limited exceptions, as it is based on reciprocity (Sierra Leone: Investor's Guide, 2015).

Sierra Leone is one of the member states of the Multilateral Investment Guarantee Agency and the International Centre for Settlement of Investment Disputes, both organizations belonging to the World Bank Group. The former promotes FDI into developing nations by offering political risk insurance (guarantees) to investors and lenders, and the latter focuses on the settlement of international investment disputes and also provides hearing facilities, such as hearing rooms, video conferencing, photocopying, and fax, among others. Being a member of the Organization of Islamic Cooperation (OIC), Sierra Leone commits to the protection, promotion and guarantee of investment among the member states of the OIC (Sierra Leone: Investor's Guide, 2015).

Table 6 - Investment guarantees

Regulatory reference	Investment guarantees
Section 7	Capacity building support in the form of business training, micro-finance, technical assistance, business incubator and pre-qualification programs, including registry of credit and local enterprise for joint ventures.
Sections 8, 9 & 10	Free transfer of funds abroad ranging from remittances, profits after taxes, and capital repatriation and of loan remittances. No restriction on the transfer of repayments of foreign loans and its interest
Section 11	Both domestic and foreign investors are guaranteed against expropriation
Section 16	Settlement of disputes through an amicable solution, or in accordance with any of the applicable procedures: United National Commission on International Trade, bilateral/multilateral agreement or any other machinery (national or international).

Source: The IPA, 2004

To further create the enabling environment to enhance private investment activities particularly FDI in the country, the government has identified and addressed some key constraints. For instance, by reviewing and updating the investment regulations, the IPA of 2004 has addressed the key issues sought by foreign investors, that consists more specifically in ensuring their protection against expropriation, an amicable dispute settlement and the free transfer of funds, as shown on the Table 6 above.

Finally, as the government's goal is focused on increasing private sector investment including the encouragement of foreign capital inflow and technology, the regulatory review of the various investment related laws suggests that there is no discrimination in terms of the available incentives between the local and foreign investors. In this context, some of the incentives are common to investments in any sector of the economy, but others are sector specific as described in the following table.

Table 7 - Investment incentives

General
• Three-year exemption from import duties for plants, machinery or equipment • 3% deduction of import duty on raw materials • 100% tax reductions on expenses relating to research and development, training including social services development (building of schools and hospitals) • Fifteen-year income tax exemption on infrastructural projects (costs more than US$ 20M) • Carry forward tax losses (each year)
Sector specific incentives
Mining
• Royalties of 5%, 4% and 3% on precious stones, precious metal and other minerals, respectively • Free importation of machinery, plant and other equipment wholly intended for prospecting and exploration purposes • Initial tax depreciation of 40% for mine development expenses in the same year, followed by 20% per annum for up to three years • Corporate income tax of 35%
Tourism
• Five-year exemption from income tax for expenses up to 150% of the original capital investment • Free importation of materials and other inputs relating to new construction, extension or renovation of existing tourism-related facilities • Three-year exemption of income tax for up to six non-Sierra Leonean staff with skills not available • 125% deduction on tourism promotion costs • The Minister of Tourism and Cultural Affairs may grant further tax relief based on article 37 of the Tourism Act of 1990
Agriculture
• Ten-year tax exemption from an individual's income or the income of a company derived from rice and crop farming such as cocoa, coffee and palm oil • Within the exemption period, the payment of any dividends to an individual engaged in farming is free from tax but withholding taxes of 50% is imposed on dividend paid to companies • Free importation of agricultural inputs such. as farm machinery, equipment and agro-chemicals.
Additional incentives to Special Economic Zones
• Exemptions of import and export duty, • Three-year corporate tax holiday

Sources: UNCTAD, 2010; Sierra Leone: An Investor´s Guide, 2015

Concluding, the evidence suggests that through legal improvements and the establishment of incentives scheme for potential investors, the Sierra Leone government

has taken significant steps to improving the investment environment in the country. However, at the international level, this commitment seems to be weak. At the regional level through its membership of ECOWAS, Sierra Leone is a signatory of the economic partnership agreement between Western Africa and the European Union, as well as of the trade and investment agreement between ECOWAS and the United States of America. Moreover, the government has signed bilateral investment treaties with Germany, United Kingdom and China, respectively in 1965, 1981 and 2001 (UNCTAD, 2010), and concluded double taxation treaties with United Kingdom, Norway, Denmark and India (in years 1947, 1954, 1954 and 1956, respectively), whose agreements established with the United Kingdom were reviewed in 2000.

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2.2.4. FDI inflows

After the country hosted the Organization of African Heads of States Summit in 1980, FDI net inflows as a percentage of GDP increased from approximately -2% to 1% in the next year. This development is evidenced by the Table 8 below, and could be partly attributed to the measures taken by the government to boost infrastructural development, thereby creating the enabling environment for private sector investment. The general elections in 1982 and its post violence had a negative impact on the net FDI inflows, expressed by its downward trend (as shown in the figure 2), particularly visible in 1986. Furthermore, between 1991 and 1999, Sierra Leone exhibited systematic net inflows close to zero, indicating a stagnation that can be attributed to the civil conflict which started in 1991 and the Military coup d'état in 1997. As Figure 2 also shows, few years after the war, especially from 2009, we witness a relatively rising trend, so that the country recorded its highest FDI net inflows in 2011 with a value of 32% of GDP, due to the implementation of structural and regulatory reforms, which contributed to an increase in the scale of production and exports of iron ore.

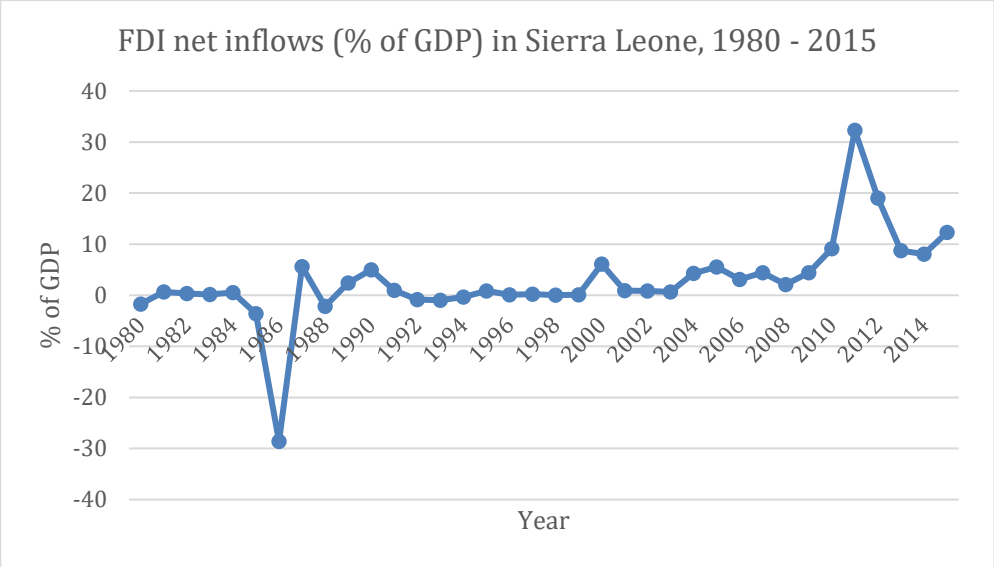
Table 8 - Sierra Leone's share of FDI inflows (Millions of US dollars), 1980-2015

Year	FDI inflows			* FDI net inflows (% of GDP) in Sierra Leone	% of Sierra Leone FDI	
	Africa	Western Africa	Sierra Leone		Africa	Western Africa
1980	400.3538	-434.39	-18.6703	-1.69624	-4.66	4.30
1981	1952.913	946.8528	7.50583	0.673271	0.38	0.79
1982	2074.092	902.6435	4.68252	0.361483	0.23	0.52
1983	1322.99	429.6223	1.69732	0.170567	0.13	0.40
1984	1884.863	297.1317	5.85669	0.53856	0.31	1.97
1985	2442.302	471.584	-30.957	-3.61271	-1.27	-6.56
1986	1770.472	138.9653	-140.311	-28.6243	-7.93	-100.97
1987	2443.143	814.8976	39.4095	5.619436	1.61	4.84
1988	3031.956	754.3064	-23.0885	-2.18831	-0.76	-3.06
1989	4693.277	2729.81	22.3564	2.396254	0.48	0.82
1990	2845.143	1553.428	32.4347	4.992682	1.14	2.09
1991	3536.143	1367.17	7.50447	0.962134	0.21	0.55
1992	3800.588	1401.332	-5.59905	-0.82339	-0.15	-0.40
1993	5443.75	2121.561	-7.46292	-0.97071	-0.14	-0.35
1994	6104.487	2787.391	-2.87419	-0.31518	-0.05	-0.10
1995	5655.132	1860.777	7.28706	0.836863	0.13	0.39
1996	6037.85	2615.052	0.663928	0.0705	0.01	0.03
1997	11030.17	2718.085	1.799251	0.211714	0.02	0.07
1998	11627.37	2507.078	0.104815	0.015599	0.00	0.00
1999	11834.68	2338.029	0.528461	0.079656	0.00	0.02
2000	9650.69	2130.94	38.87852	6.13342	0.40	1.82
2001	19974.59	2074.989	9.84054	0.911157	0.05	0.47
2002	14739.6	2913.273	10.41278	0.840466	0.07	0.34
2003	18230.74	3363.916	8.624312	0.628174	0.05	0.26
2004	17737.55	3669.307	61.15324	4.272844	0.34	1.67
2005	29631.66	7157.701	83.18	5.573697	0.28	1.16
2006	34578.23	7056.623	58.77	3.122846	0.17	0.83
2007	50290.8	9546.625	96.58	4.422993	0.19	1.01
2008	57728.57	12424.61	57.62	2.119176	0.10	0.46
2009	54194.92	14725.6	110.85	4.434973	0.20	0.75
2010	43571.48	12007.61	238.44	9.111181	0.55	1.99
2011	47786.34	18956.16	950.48	32.30119	1.99	5.01
2012	55155.71	16873.42	722.45	19.00246	1.29	4.28
2013	52154.2	14493.37	429.68	8.732627	0.82	2.96
2014	58299.77	12115.28	403.91	8.05373	0.69	3.33
2015	54079.48	9893.919	518.68	12.30622	0.96	5.24

Sources: Author's computation from UNCTAD Stat online

*Data from databases: World Bank, African Development Indicators

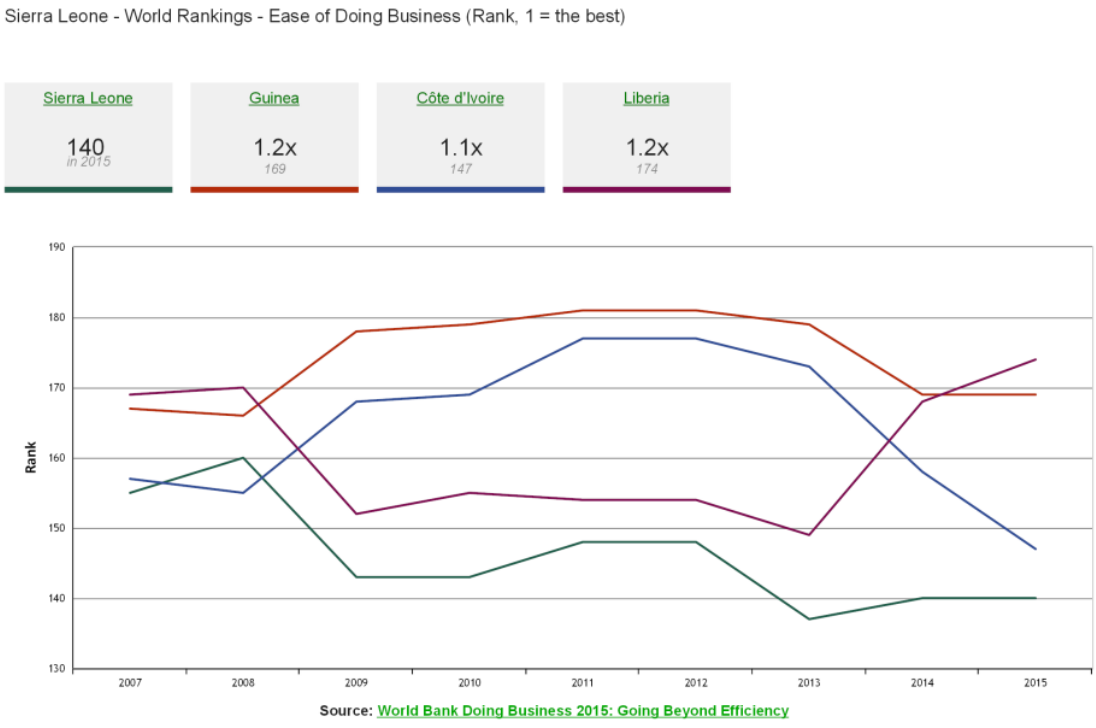
Figure 2 - FDI net inflows (% of GDP), 1980-2015



Source: Author's computation

This better performance in recent years is also reflected on the country's positioning in the World Bank Doing Business ranking, expressed by the Figure 3, in which Sierra Leone has been ranked ahead of Guinea, Liberia and Cote d'Ivoire since 2009 to 2015.

Figure 3 - Ease of Doing Business Rankings, 2007-2015



Though the World Bank Doing Business ranking reveals that Sierra Leone has outperformed the other member states of the MRU, we should take in consideration that, as previously discussed in the introductory chapter, the FDI net inflows into the country are lower in comparison with these countries and in the context of Western Africa. Thus, our study considers other international rankings that are also relevant for assessing the countries' business friendly environment, such as the indices of Corruption Perceptions, Global Competitiveness and Economic Freedom, that are presented in the following table.

Based on the data from Table 9, the Corruption Perceptions Rank over the period 2010–2015 shows that Sierra Leone did not make significant progresses to fight corruption. Thus, the country maintained its 119th position since 2013, and, except for Guinea, Sierra Leone was ranked below Liberia and Cote d'Ivoire.

Table 9 - International rankings overall score for the member states of the MRU, 2010-2015

Year	Index	Country			
		Sierra Leone	Guinea	Liberia	Cote d'Ivoire
2010	Corruption Perceptions	134	164	87	146
	Economic freedom	47.9	51.8	46.2	54.1
	Global competitiveness	n/a	n/a	n/a	129
2011	Corruption Perceptions	134	164	91	154
	Economic freedom	49.6	51.7	46.5	55.4
	Global competitiveness	n/a	n/a	n/a	129
2012	Corruption Perceptions	123	154	75	130
	Economic freedom	49.1	50.8	48.6	54.3
	Global competitiveness	143	141	n/a	131
2013	Corruption Perceptions	119	150	83	136
	Economic freedom	48.3	51.2	49.3	54.1
	Global competitiveness	144	147	n/a	126
2014	Corruption Perceptions	119	145	94	115
	Economic freedom	50.5	53.5	52.4	57.7
	Global competitiveness	138	144	n/a	115
2015	Corruption Perceptions	119	139	83	107
	Economic freedom	51.7	52.1	52.7	58.5
	Global competitiveness	137	140	129	91

Sources: Author from Corruption Perceptions Index, 2016
The Global Competitiveness Index 2014 - 2015 data platform, 2014
The Global Competitiveness Report 2015 - 2016

On the other hand, the World Economic Forum takes into consideration many determinants to assess the performance of economies, such as the countries' institutions, macroeconomic stability, undue influence and corruption, regulation, market size, efficient use of talent, and the availability of incentives for firms to invest in research and development (Global Competitiveness Report, 2015-2016). The available data for Sierra Leone started in 2012, and until 2015 the evidence suggests that, just like the Corruption Perceptions index, the country's positioning on Global Competitiveness ranking is lower than Guinea and specially Cote d'Ivoire.

Finally, the Index of Economic Freedom underscores the importance of governments to allow the free movement of labor, capital and goods and refrain from constraints of freedom beyond the level necessary to protect and maintain it. In addition, it is measured based both on quantitative and qualitative factors, grouped into four broad categories of economic freedom, that are graded on a scale from 0 to 100. In this context, the country's overall score is simply the average of the following twelve economic freedoms of equal weights: Rule of Law (property rights, government integrity, judicial effectiveness), Government Size (government spending, tax burden, fiscal health), Regulatory Efficiency (business freedom, labor freedom, monetary freedom) and Open Markets which includes trade freedom, investment freedom and financial freedom (Index of Economic Freedom Report, 2017). The assessment for Sierra Leone supports the other international rankings discussed in the preceding paragraphs, so that in the period 2010-2012 the country was ranked below Guinea and Cote d'Ivoire, and from 2013 to 2015, it has been surpassed by Liberia, thereby occupying the last position in the context of the MRU countries.

Chapter 3: Methodology and Model Estimation

3.1. Model specification and description of variables and data

In line with the discussions in the literature, and based on the availability of data for Sierra Leone over the 1980 – 2015 period, the general model of the study is specified as follows:

FDI = f (GDPPC, GFCF, INF, NAT, OPEN, CRED, DUM) …….(1)

Where:

- FDI denotes net inflows of foreign direct investment, as percent of GDP
- The inclusion of a proxy to represent market size in most of the empirical studies on FDI suggests that the dimension of the host country has been widely recognized as a key determinant of inward FDI. Based on its hypothesis, a large market is required by foreign firms to effectively utilize their resources and exploit economies of scale Chakrabarti (2001). Previous authors have generally used per capita gross domestic product, per capita gross national product, urban population as a share of total population and real GDP growth as a proxy for market size of the host country, and most of the studies have generally found it to have a positive and significant effect on FDI, although it has been insignificant in few of the studies. In the present study, GDP per capita is included as a measure of market size and it is expected to have a positive impact on FDI inflows.
- The relevance of the host country's infrastructure (GFCF) as one of the factors influencing foreign investors' decisions is emphasized in the literature. Based on its advantages in terms of cost minimization and profit maximization for the foreign investors, the quality of the host country's infrastructure has been considered in several empirical studies, where it is believed to have a positive impact on FDI. The most common proxies for infrastructure have been telephone mainline subscribers per 1000 population, and gross fixed capital formation as a share of GDP, and likewise the present study has included the latter (which comprises land improvements, construction of roads, railways, schools, industrial and commercial buildings, World Bank 2017) as a proxy

to examine the relationship between infrastructure development and FDI inflows in Sierra Leone. A positive relationship is expected between the country's level of infrastructural development and FDI.

- The rate of Inflation (represented by INF) has been generally considered in the literature as one of the key indicators of macroeconomic instability. It is represented by the annual growth of consumer price index, and since a high rate of inflation leads to economic uncertainty in the host country, a negative relationship is expected between inflation and FDI. Thus, a stable economy often associated with a lower degree of uncertainty attracts more FDI inflows.
- The literature has highlighted the importance of natural resources endowment (NAT) as one of the major determinants of FDI to developing countries. This is particularly noted for natural resource seeking FDI especially to Sub-Saharan Africa. In the literature, some proxies have been used such as the share of minerals and oil in total merchandise, fuel exports, and total natural resources rent as a share of GDP. In our study, the latter is included to capture the availability of natural resources endowments in the host country, that is expected to have a positive impact on the attraction of FDI, in line with most of the empirical studies.
- The openness of an economy to international trade (OPEN) may suggest that the country in question is adopting some favorable trade and exchange rate policies. The ratio of trade to GDP has been generally used in previous studies, and will be included as a proxy to capture the extent to which the economy of Sierra Leone is open to international trade. A positive and significant effect of trade openness on FDI is expected and it has been well documented in the literature, suggesting that more open economies attract higher levels of inward FDI. However, other studies such as Asiedu (2002) and Blonigen (2002) have noted that there would be an inverse relationship between trade openness and FDI, if the motive for FDI in developing countries is a ''tariff jumping'' strategy.
- The literature has also recognized the importance of financial sector development in attracting FDI inflows. In this regard, in order to capture the impact of financial sector development on FDI, the variable CRED, denoting

the share of domestic credit to private sector as a percent of GDP is included in our analysis. The availability of credit to the private sector suggests that the potential investors would have a pre-knowledge about the possibility of obtaining more loans, which could act as an incentive to increase their ability to invest. Based on the positive effect it creates on the mindset of foreign investors, a positive correlation is expected between domestic credit to the private sector and inward FDI.

- In addition to the above-mentioned determinants, political stability of the host country is a key factor in the pre-investment decision-making process of foreign investors. For instance, according to Dunning (1998), political stability is one of the location-specific factors which influences inward FDI. Likewise, the empirical literature generally attributes the lower levels of inward FDI into developing countries to the instability of the political environment. In this regard, by way of accounting for the impact of political instability in attracting inward FDI in Sierra Leone, we have included a binary variable, (DUM), to capture the effect of the civil war, 1991- 2002 = 1 and 0 otherwise). In line with the literature, political instability is expected to be negatively correlated with FDI over the sample period.

The study used annual time series data for Sierra Leone from 1980 to 2015, and apart from the binary variable, data for other variables were sourced from the database of the African Development Indicators (2017) of the World Bank and the UNCTAD. Likewise, for comparison purpose, we obtained data from the indices of the Corruption Perceptions, Global Competitiveness and Economic Freedom.

3.2. Technique of analysis

3.2.1. Statistical and stationarity analysis

The time series econometric analysis was preceded by statistical analysis which shows the descriptive statistics of our selected variables as well as the strength of the relationship of those variables.

As the empirical analysis is based on an annual time series data which, if non-stationary may lead to spurious regression results, the study employs both the Augmented Dickey Fuller and Phillips-Perron unit root tests to check the stationary of the variables. In addition to ensuring that the non-stationary issue is addressed, the unit root testing could be relevant to selecting the appropriate research method for the empirical analysis. The stationary testing confirms that whilst some of the underlying variables are integrated of order zero I(0), others are of order one I(1), an outcome which guided the selection of the bounds testing estimation technique because, it is the appropriate method when there is a mixture of I(0) and I(1) variables but none is I(2).

3.2.2. The bounds testing approach

The existence of a relationship level between FDI and its determinants was determined by employing the autoregressive distributed lag (ARDL, or alternatively ADL) model which was developed by Pesaran et al. (2001).

The authors note that, unlike other estimation methods used to test for the existence of relationship between variables in levels, such as Engle and Granger (1987) and Johansen (1991, 1995), the ARDL approach is applicable regardless of whether the explanatory variables are purely I(0), I(1) or mutually cointegrated. They maintained that in addition to generating consistent estimates of the long run model, the bounds testing technique is also suitable for estimating small sample sizes. The bounds testing estimation method requires the modelling of equation (1) to a Conditional Error Correction Model (ECM), Pesaran et al. (2001).

The researcher followed three steps to apply the ARDL estimation method, where in step one, the long run relationship among FDI and its determinants were estimated by testing the significance of the lagged levels of the variables in the following conditional ECM.

$$\Delta FDI_t = \lambda_0 + \theta_1 FDI_{t-1} + \theta_2 GDPPC_{t-1} + \theta_3 GFCF_{t-1} + \theta_4 INF_{t-1} + \theta_5 NAT_{t-1} + \theta_6 OPEN_{t-1} + \theta_7 CRED_{t-1} + \delta DUM_t + \sum_{i=1}^{p} \alpha_1 \Delta FDI_{t-i} + \sum_{I=0}^{q} \alpha_2 \Delta GDPPC_{t-i} + \sum_{i=0}^{r} \alpha_3 \Delta GFCF_{t-i} + \sum_{i=0}^{s} \alpha_4 \Delta INF_{t-i} + \sum_{i=0}^{t} \alpha_5 \Delta NAT_{t-i} + \sum_{i=0}^{u} \alpha_6 \Delta OPEN_{t-i} + \sum_{i=0}^{v} \alpha_7 \Delta CRED_{t-i} + \varepsilon t \quad (2)$$

The optimum lagged orders of equation (2) above was selected based on the Akaike Information Criterion (AIC). The existence of the long run relationship was confirmed by the F-Bounds test which consists of lower and upper bounds critical values, I(0) and I(1) respectively based on the following Null and Alternative hypothesis.

H_0: $\theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = \theta_7 = 0$ (No levels relationship)

H_1 $\theta_1 \neq \theta_2 \neq \theta_3 \neq \theta_4 \neq \theta_5 \neq \theta_6 \neq \theta_7 \neq 0$ (Evidence of levels relationship)

The existence of a long run relationship among the variables is confirmed and otherwise, if the computed F-statistic value falls above the upper bound critical value and below the lower bound critical value respectively. Should the computed F-statistic value fall between the lower and upper bounds critical values, the result is inconclusive, thus, requiring further knowledge of the order of integration of the variables prior to making a conclusive inference (Pesaran et al. 2001).

Once the existence of a long run relationship between FDI and the independent variables has been confirmed, the second step involves the estimation of the long run model, presented in equation (3). It is important to note that the ARDL long run form and the bounds test are jointly estimated by the econometric software (Eviews 9.5).

$$FDI_t = \lambda_0 + \sum_{i=1}^{p}\alpha_1 FDI_{t-i} + \sum_{i=0}^{q}\alpha_2 GDPPC_{t-i} + \sum_{i=0}^{r}\alpha_3 GFCF_{t-i} + \sum_{i=0}^{s}\alpha_4 INF_{t-i} + \sum_{i=0}^{t}\alpha_5 NAT_{t-i} + \sum_{i=0}^{u}\alpha_6 OPEN_{t-i} + \sum_{i=0}^{v}\alpha_7 CRED_{t-i} + \gamma DUM_t + \varepsilon_t \quad (3)$$

Finally, the Error Correction Model is presented below, where Δ denotes the first difference operator and the coefficients $\psi_1, \psi_2, \psi_3, \psi_4, \psi_5$ and ψ_6 represent the short run dynamic parameters, p, q, r, s, t, u,v represent optimal lags and ECM_{t-1} and δ_1 represent the error correction term and the speed of adjustment respectively.

$$\Delta FDI_t = \psi_0 + \delta_1 ECM_{t-1} + \sum_{i=1}^{p}\psi_1 \Delta FDI_{t-i} + \sum_{i=0}^{q}\psi_2 \Delta GDPPC_{t-i} + \sum_{i=0}^{r}\psi_3 \Delta GFCF_{t-i} + \sum_{i=0}^{s}\psi_4 \Delta INF_{t-i} + \sum_{i=0}^{t}\psi_5 \Delta NAT_{t-I} + \sum_{i=0}^{u}\psi_6 \Delta OPEN_{t-i} + \sum_{i=0}^{v}\psi_7 \Delta CRED_{t-i} + \gamma DUM_t + \varepsilon_t . \quad (4)$$

3.2.3. Causality

The existence of long run relationship suggests an evidence of at least one direction of causality for such relationship to hold (Engle and Granger, 1987). As the ARDL estimation technique seeks to establish the existence of cointegration between the variables but with no information regarding the direction of such relationship, the study employs the Toda and Yamamoto (1995) causality test method, where we estimated a Vector autoregressions (VAR) model that is formulated in levels. Unlike the conventional F-statistic used to test for granger causality that is however inapplicable when the time series data are integrated or cointegrated, Toda and Yamamoto (1995) maintained that their method is appropriate regardless of whether the VAR's may be stationary around a deterministic trend, integrated or cointegrated of a random order.

The estimation process involves two steps, where, following the determination of the maximum order of integration of the underlying variables, we run an unrestricted VAR model in level form and determined the lag order selection criteria. Residual and Stability tests were carried out to ensure that the residuals of the estimated model are serially independent and the model is stable over the sample period. The last step involves the estimation of Johansen's Trace tests and Max Eigenvalue tests (to further confirm the existence of long run relationship between FDI and the regressors), followed by the application of the modified Wald procedure to test the VAR model for granger causality.

3.2.4. Stability and diagnostic test

The stability of the ARDL model will be determined by the tests of Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ), which were proposed by Brown et al. (1975). These tests, based on the Cumulative Sum of Recursive Residuals and Cumulative Sum of Squares of Recursive Residuals suggest that, the parameters of the model are stable and otherwise if the plots of CUSUM and CUSUMSQ lie within and outside the five percent critical bound respectively.

As for residual diagnostic, the study will employ the Breusch-Godfrey Serial correlation LM test in order to confirm whether the residuals from the model are serially correlated, based on the Null hypothesis that, the residuals are serially uncorrelated.

Furthermore, the Heteroskedasticity Test Breusch-Pegan-Godfrey will be used to determine whether to accept or reject the null hypothesis that the residuals are homoscedastic. The functional form and normality of the residuals will be determined by the Ramsey Regression Specification (RESET) and Jarque-Bera tests respectively, under the null hypotheses that, the model is correctly specified (RESET test) and the errors of the residuals are normally distributed (Jarque-Bera test).

3.3. Empirical results and discussion

3.3.1. Statistical analysis

The statistical and correlation analysis of our selected variables are presented in Appendix 1[7]

The correlation matrix shows that all the underlying variables have the expected signs. The inflation rate and the binary variable, represented by INF and DUM respectively are negatively correlated with the dependent variable (FDI) and the other regressors. In comparison with other variables, openness of the economy, and the level of infrastructural development, represented by OPEN and GFCF respectively are highly correlated with FDI than the other regressors. Furthermore, the explanatory variables are not highly correlated, suggesting the absence of multicollinearity because each of the explanatory variables has value less than 0.8.

3.3.2. Stationarity and Cointegration tests

The Bounds testing technique does not require the conduct of unit root test. However, as Pesaran et al. (2001) note, the underlying variables should not be integrated of order greater one. To avoid spurious results and ensure that none of the variables is integrated of order greater than one, we employed both the Augmented Dickey-Fuller and

[7] The former suggests that, apart from FDI and GDPPC, the other variables are positively skewed. In addition, unlike CRED and DUM which are lower peak, the other variables are long tailed or higher peak. Based on the Jarque-Bera test, GDPPC, OPEN and CRED are normally distributed but the residuals of FDI, GFCF, INF, NAT, and DUM are not. The binary variable (DUM) has the lowest standard deviation, suggesting a high degree of its reliability on its contribution towards explaining variations in FDI.

Phillips-Perron unit root tests to check the order of integration of the variables. Given that each test was conducted under first differences, and as tables 10 and 11 show, and the probability value of each of the variables is zero, we therefore reject the null hypothesis of unit root (individual unit root process) at all levels of significance, and conclude that, there is no unit roots in first differences. This confirms that, each of the series must be either integrated of order zero (I(0) or one I(1), a further justification of our decision to adopt the bounds testing procedure for the empirical analysis of the study.

Table 10 - Augmented Dickey Fuller Unit Root test

Null Hypothesis: Unit root (individual unit root process)
Series: FDI, GDPPC, GFCF, INF, NAT, OPEN, CRED
Date: 06/09/17 Time: 16:49
Sample: 1980 2015
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Total number of observations: 235
Cross-sections included: 7

Method	Statistic	Prob.**
ADF - Fisher Chi-square	262.343	0.0000
ADF - Choi Z-stat	-14.7676	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Intermediate ADF test results D(GROUP02)

Series	Prob.	Lag	Max Lag	Obs
D(FDI)	0.0000	0	8	34
D(GDPPC)	0.0000	2	8	32
D(GFCF)	0.0000	0	8	34
D(INF)	0.0000	1	8	33
D(NAT)	0.0000	0	8	34
D(OPEN)	0.0000	0	8	34
D(CRED)	0.0000	0	8	34

Source: Author's calculation using Eviews 9.5

Table 11 - Phillips-Perron Unit Root test

Null Hypothesis: Unit root (individual unit root process)
Series: FDI, GDPPC, GFCF, INF, NAT, OPEN, CRED
Date: 05/29/17 Time: 23:41
Sample: 1980 2015
Exogenous variables: Individual effects, individual linear Trends
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 238
Cross-sections included: 7

Method	Statistic	Prob.**
PP - Fisher Chi-square	706.124	0.0000
PP - Choi Z-stat	-23.4796	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Intermediate Phillips-Perron test results D(GROUP02)

Series	Prob.	Bandwidth	Obs
D(FDI)	0.0000	33.0	34
D(GDPPC)	0.0000	11.0	34
D(GFCF)	0.0000	33.0	34
D(INF)	0.0000	13.0	34
D(NAT)	0.0000	33.0	34
D(OPEN)	0.0000	4.0	34
D(CRED)	0.0000	2.0	34

Source: Author's calculation using Eviews 9.5

3.3.3. Maximum Lag and ARDL Model Selection

The estimation of equation (2) requires an information on the maximum order of lags on the first differenced variables, obtained from the VAR Lag Order Selection Criteria, in which the AIC suggests a maximum lag of 3 for each variable as presented in table 12 below.

Table 12 - VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: FDI GDPPC GFCF INF NAT OPEN CRED
Exogenous variables: C DUM
Date: 06/09/17 Time: 17:34
Sample: 1980 2015
Included observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-774.4952	NA	1.34e+12	47.78759	48.42247*	48.00121
1	-696.2278	113.8435	2.51e+11	46.01381	48.87078	46.97509
2	-645.1176	52.65899	3.72e+11	45.88592	50.96497	47.59487
3	-531.4243	68.90503*	3.96e+10*	41.96511*	49.26625	44.42172*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Author's calculation using Eviews 9.5

The ARDL model was selected following the lag selection and estimation of equation (2). In what follows, the econometric software (Eviews 9.5) jointly estimated the ARDL Long Run Form (equation (3)) and Bounds test and the results are presented as follows:

Table 13 - ARDL Long Run Form and Bound Test

ARDL Long Run Form and Bounds Test
Dependent Variable: D(FDI)
Selected Model: ARDL(2, 0, 3, 3, 0, 2, 3)
Case 3: Unrestricted Constant and No Trend
Date: 05/30/17 Time: 00:24
Sample: 1980 2015
Included observations: 33

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.23134	3.440765	-4.717363	0.0005
FDI(-1)*	-1.405088	0.199128	-7.056219	0.0000
GDPPC**	0.106134	0.097199	1.091919	0.2963
GFCF(-1)	-1.274488	0.388037	-3.284453	0.0065
INF(-1)	-0.138753	0.027624	-5.022836	0.0003
NAT**	0.515467	0.213435	2.415103	0.0326
OPEN(-1)	0.559779	0.092370	6.060180	0.0001
CRED(-1)	1.870657	0.747295	2.503237	0.0278
D(FDI(-1))	0.232765	0.147438	1.578736	0.1404
D(GFCF)	-0.163071	0.131152	-1.243368	0.2375
D(GFCF(-1))	1.234698	0.288863	4.274333	0.0011

D(GFCF(-2))	0.330534	0.177743	1.859619	0.0876
D(INF)	-0.056627	0.029218	-1.938096	0.0765
D(INF(-1))	-0.012933	0.024261	-0.533075	0.6037
D(INF(-2))	0.107330	0.021626	4.963078	0.0003
D(OPEN)	0.228875	0.070964	3.225233	0.0073
D(OPEN(-1))	-0.197316	0.063467	-3.108939	0.0090
D(CRED)	-3.401890	0.664000	-5.123329	0.0003
D(CRED(-1))	-0.455988	0.860615	-0.529839	0.6059
D(CRED(-2))	2.978663	0.719704	4.138733	0.0014
DUM	-8.596154	2.382349	-3.608268	0.0036

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC	0.075535	0.066720	1.132115	0.2797
GFCF	-0.907052	0.289696	-3.131048	0.0087
INF	-0.098750	0.013656	-7.231110	0.0000
NAT	0.366857	0.136762	2.682444	0.0199
OPEN	0.398394	0.070475	5.652955	0.0001
CRED	1.331345	0.509252	2.614317	0.0226

EC = FDI - (0.0755*GDPPC -0.9071*GFCF -0.0988*INF + 0.3669*NAT + 0.3984*OPEN + 1.3313*CRED)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.70816	10%	2.12	3.23
k	6	5%	2.45	3.61
		2.5%	2.75	3.99
		1%	3.15	4.43

t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-7.056219	10%	-2.57	-4.04
		5%	-2.86	-4.38
		2.5%	-3.13	-4.66
		1%	-3.43	-4.99

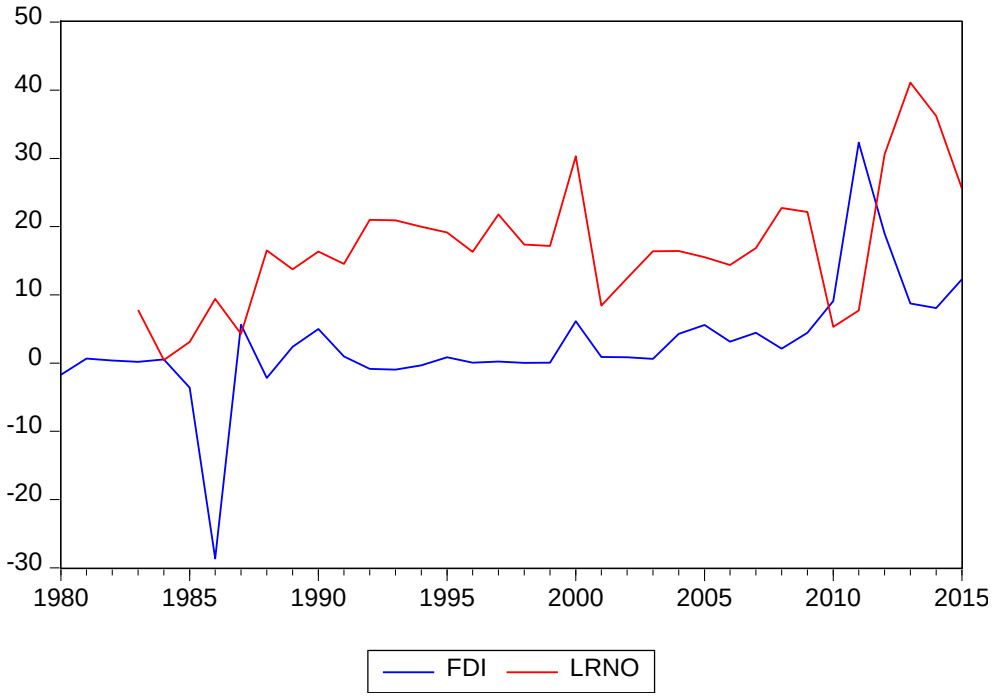
Source: Author's calculation using Eviews 9.5

3.3.4. Bounds test for the presence of cointegration

The F-Bounds Test result from table 13 above suggests the rejection of the null hypothesis of no levels relationship between FDI and the explanatory variables at the 1% levels of significance because the F-statistic value of 10.70816 is greater than the upper bounds critical values I(1) of 3.23, 3.61,3.99 and 4.43 respectively. Therefore, a long run relationship exists between our dependent and independent variables.

In what follows, we attempted to present the relationship between the long run equation and the dependent variable. In doing so, we extracted the error correction term, and deducted from it the dependent variable. The long run equation is represented by LRNO, and the following Figure 4 depicts its relationship with the dependent variable. Visualizing the fit of LRNO and FDI, we note that it makes sense to studying the speed of adjustment (The Eviews Blog on ARDL - Part 3).

Figure 4 - Fit of Long run equation and dependent variable



Source: retrieved from Eviews 9.5

3.3.5. Long Run Estimate

In view of the stability and diagnostic tests results, presented in section 3.3.7. we can confirm that the estimated coefficients of the ARDL model are free from serial correlation, heteroskedasticity, non-normality of the residuals and functional form errors. Therefore, the aforementioned tests clearly highlight the reliability of the goodness of fit of the model.

The estimated results of the long run relationship reveal that, the coefficients of domestic credit to the private sector as percent of GDP, ratio of trade to GDP, total natural resources rent as percent of GDP and inflation rate are correctly signed and statistically significant at five percent level. However, though significant at the same level, infrastructural development variable proxied by gross fixed capital formation as a percent of GDP is negatively related with FDI as percent of GDP, which suggests a deviation from a priori expectation. This result could be attributed to the poor state of the country's infrastructural facilities, namely road network, communication and electricity. The UNCTAD (2010) notes that, in addition to the lack and cost of electricity, limited paved road network and poor communications infrastructure are the most frequently cited constraints facing investors.

Furthermore, as expected, per capita GDP growth is positively correlated with FDI net inflows as percent of GDP, nevertheless it is insignificant in influencing FDI into Sierra Leone.

As expected, openness of the Sierra Leonean economy to international trade (OPEN) is positively related to FDI inflows, and its coefficient is statistically significant at five percent level. This observation is in line with most of the empirical literature on developing countries, especially Sub-Saharan Africa, for instance, Morisset (2000), Youssef et al. (2001), Bende-Nabende (2002), Asiedu 2002), Asiedu 2004), Yasin (2005), Asiedu (2006), Fedderke and Romm (2006), Poku et al. (2013, Kariuki (2015), Mtar and Ep Safar (2015), Sesay (2015), Sikwila (2015, Adefeso and Agboola (2015), and Workneh (2015). Based on the estimated coefficient for OPEN, and assuming that all other factors remaining the same, a one percentage point (p.p) increase in trade openness of the Sierra Leonean economy will cause inward FDI to increase by 0.4 p.p.

The impact of macroeconomic instability on inward FDI is evidenced by the negative and statistically significant (at five percent level) effect of inflation rate on FDI net inflows. The empirical analyses of many of the previous studies have also found a negative and significant relationship between inflation and FDI such as Poku et al. (2013), EpSafar and Mtar (2015), Sesay (2015), Sikwila (2015), and Workneh (2015). The estimated results show that a one p.p increase in inflation rate will decrease the ratio of FDI to GDP by 0.1 p.p, all things being equal.

There is evidence of a positive correlation between the ratio of FDI inflows to GDP and domestic credit to the private sector, which supports the findings of studies like Youssef et al. (2001). Therefore, at five percent level of significance, an increase of one p.p in the availability of domestic credit to the private sector will increase inward FDI by 1.33 p.p, all things being equal.

In line with the literature, the estimated coefficient for natural resources endowment is positive and statistically significant determinant of inward FDI. The result reveals that, a one percent increase in total natural resources rent as a percent of GDP will cause an increase of FDI net inflows as percent of GDP by 0.37 p.p. This observation is consistent with the literature, for example Asiedu (2006), Poku et al. (2013, Yiheyis et al. (2015), Mtar and Ep Safar (2015), and Sesay (2015).

Regarding GDP per capita growth and gross fixed capital formation as percent of GDP, the results reveal that, whilst the estimated coefficient of the former is positive (as expected) but insignificant, the latter, though statistically significant at five percent level, is found to be negatively correlated with inward FDI. The estimated result of the GDP per capita growth differs from some of the previous studies, for example, (Lado (2015). Likewise, the result of the infrastructure variable does not support some of the previous studies such as Asiedu (2002),) and Lado (2015).

3.3.6. Short Run Estimate

The existence of cointegration between FDI and the explanatory variables is a requirement to estimating the error correction model to studying the speed of adjustment. As evidenced from table 14 below, we can say that based on the adjusted R-squared value of 0.946192, the behavior of FDI in Sierra Leone is adequately captured in the ARDL

model (2,0,3,3,0,2,3). Thus, based on the estimated R-squared value, the regressors account for ninety five percent changes of FDI, with only five percent explained by other determinants (excluded from the ARDL model), but accounted for by the error term.

Table 14 - ARDL Error Correction Regression

ARDL Error Correction Regression
Dependent Variable: D(FDI)
Selected Model: ARDL(2, 0, 3, 3, 0, 2, 3)
Case 3: Unrestricted Constant and No Trend
Date: 05/30/17 Time: 00:46
Sample: 1980 2015
Included observations: 33

ECM Regression
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.23134	1.668712	-9.726866	0.0000
D(FDI(-1))	0.232765	0.090055	2.584691	0.0239
D(GFCF)	-0.163071	0.079182	-2.059444	0.0618
D(GFCF(-1))	1.234698	0.130420	9.467122	0.0000
D(GFCF(-2))	0.330534	0.111640	2.960705	0.0119
D(INF)	-0.056627	0.019225	-2.945557	0.0122
D(INF(-1))	-0.012933	0.015986	-0.809021	0.4343
D(INF(-2))	0.107330	0.014124	7.599081	0.0000
D(OPEN)	0.228875	0.043312	5.284301	0.0002
D(OPEN(-1))	-0.197316	0.040722	-4.845444	0.0004
D(CRED)	-3.401890	0.430517	-7.901868	0.0000
D(CRED(-1))	-0.455988	0.586057	-0.778060	0.4516
D(CRED(-2))	2.978663	0.465073	6.404721	0.0000
DUM	-8.596154	1.279139	-6.720266	0.0000
CointEq(-1)*	-1.405088	0.132511	-10.60357	0.0000

R-squared	0.969733	Mean dependent var	0.361962
Adjusted R-squared	0.946192	S.D. dependent var	9.486337
S.E. of regression	2.200497	Akaike info criterion	4.718199
Sum squared resid	87.15940	Schwarz criterion	5.398430
Log likelihood	-62.85028	Hannan-Quinn criter.	4.947076
F-statistic	41.19358	Durbin-Watson stat	2.493546
Prob(F-statistic)	0.000000		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.70816	10%	2.12	3.23
K	6	5%	2.45	3.61
		2.5%	2.75	3.99
		1%	3.15	4.43

t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-10.60357	10%	-2.57	-4.04
		5%	-2.86	-4.38
		2.5%	-3.13	-4.66
		1%	-3.43	-4.99

Source: Author's calculation using Eviews 9.5

In line with theoretical expectation, the error corer term, represented by Coint(Eq(-1) in table 14, is negative and statistically significant, a further confirmation of the existence of long run relationship between FDI and the regressors. With an estimated coefficient of (-1.40), the error correction term does not converge directly to the equilibrium but fluctuates around the long run, nevertheless, after this process, the convergence to the equilibrium is fast.

The coefficient of the lagged value of FDI is positive and statistically significant, an observation which has been confirmed in previous studies such as Kariuki (2015). This confirms a positive and significant effect at the five percent level between FDI inflows to Sierra Leone in the previous year and current inward FDI, where a one p.p increase in the former will lead to an increase of the latter by 0.23 p.p.

Interestingly, the expected sign and significance of trade openness has been confirmed by the short run estimation, where a one p.p rise in this variable will cause an increase of FDI net inflows as a percent of GDP by 0.22 p.p. This observation supports the empirical results of previous studies, such as Sesay (2015) and Lado (2015). On the other hand, we observed a negative and statistical significant correlation between the lagged value of trade openness and FDI inflows as percent of GDP, and the estimated result shows that, an increase of one p.p in the lagged value of trade openness will lead to a decrease of the ratio of FDI inflows to GDP by 0.20 p.p.

Like the long run estimate, the short run result for the infrastructure variable is negative and significant. On the other hand, as expected, the coefficient of the infrastructure development variable is positive and statistically significant for lagged one and two. We observed that, the lagged values of gross fixed capital formation are positive and statistically significant at five percent level. This result supports the observation of previous studies such as Bhattachrya et al. (1997). This suggests that, ceteris paribus, a

one p.p increase in lagged one and lagged two of gross fixed capital formation will cause an increase of FDI (annually) by 1.23 p.p. and 0.33 p.p. respectively in the short run.

In contrast to the long run estimate, which highlighted a positive and significant effect of domestic credit with FDI inflows, the short run estimate confirms a significant but negative relationship between the two variables, suggesting that, in the short run, an improved financial sector development in Sierra Leone could be associated with lower levels of inward FDI. Thus, in the short run, FDI net inflow is a substitute of domestic credit in the private sector in the country. Furthermore, the positive and significant result for lagged two is in line with the result of the long run estimate discussed earlier.

With regards to macroeconomic instability proxied by inflation rate, we observed a similar result as in the long run estimation. This validates the findings of some studies, for instance, Naude and Krugell (2007), Sesay (2015), and Lado (2015). However, the lagged two value of inflation rate is positive and significant at five percent level.

Finally, the correlation between FDI and political instability, proxied by a binary variable (Dummy), has a negative sign and it is statistically significant at five percent level, similarly to the results of other studies like Malefane (2007) and Sesay (2015).

3.3.7. Stability and Diagnostic tests

By way of ensuring the reliability of the goodness of fit of the ARDL model, we conducted four diagnostic tests. More specifically, the tests were aimed at addressing issues relating to autocorrelation, heteroskedasticity, normality of the residuals and functional form misspecification.

Based on the test results in table 15, the F-stats probability value of 0.0783 confirms that, at ten percent significance level, we reject the null hypothesis (the residuals are serially uncorrelated), so there is still some doubts.

Table 15 - Breusch-Godfrey Serial Correlation LM Test

F-statistic	3.457641	Prob. F(6,6)	0.0783
Obs*R-squared	25.59698	Prob. Chi-Square(6)	0.0003

Source: Author's calculation using Eviews 9.5

On the other hand, the test for heteroskedasticity was based on the Heteroskedasticity Test Breusch-Pegan-Godfrey under the Null hypothesis that the residuals are homoscedastic. Based on the estimated result in table 16, the F-statistic probability value of 0.9108 confirms that we will fail to reject the null hypothesis, and therefore conclude that the residuals are homoscedastic.

Table 16 - Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.511410	Prob. F(20,12)	0.9108
Obs*R-squared	15.18480	Prob. Chi-Square(20)	0.7657
Scaled explained SS	2.567211	Prob. Chi-Square(20)	1.0000

Source: Author's calculation using Eviews 9.5

The third and fourth diagnostic tests include the Regression Specification and Jarque-Bera tests, presented in tables 17 and Figure 5, respectively, where the results show that the errors are normally distributed and the model is correctly specified.

Table 17 - Ramsey RESET Test

Equation: UNTITLED
Specification: FDI FDI(-1) FDI(-2) GDPPC GFCF GFCF(-1) GFCF(-2) GFCF(-3) INF INF(-1) INF(-2) INF(-3) NAT OPEN OPEN(-1) OPEN(-2) CRED CRED(-1) CRED(-2) CRED(-3) DUM C
Omitted Variables: Squares of fitted values

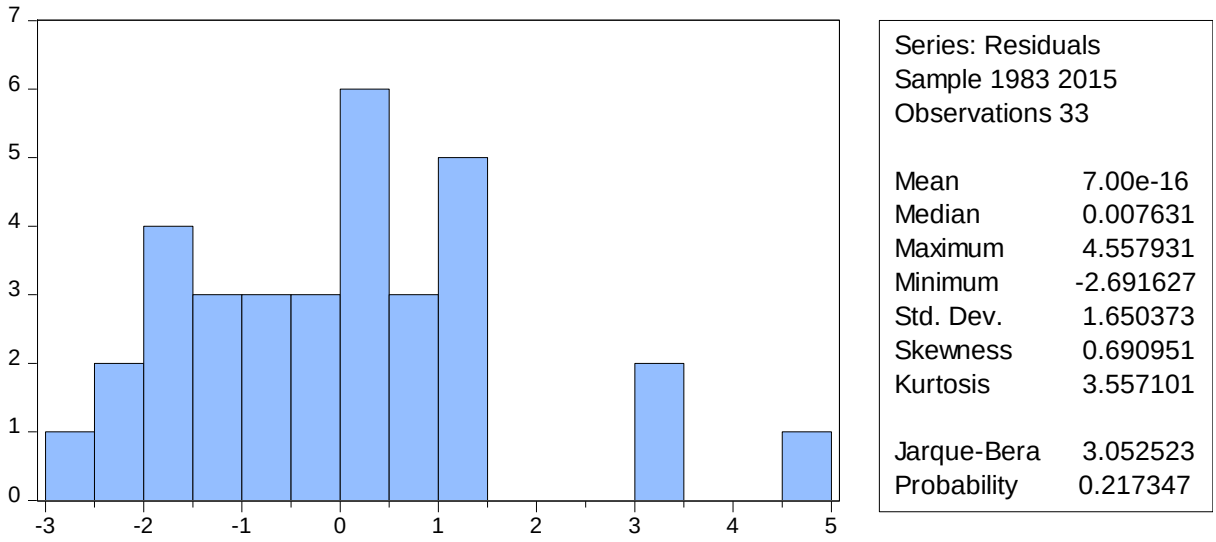
	Value	df	Probability
t-statistic	0.427068	11	0.6776
F-statistic	0.182387	(1, 11)	0.6776

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	1.421591	1	1.421591
Restricted SSR	87.15940	12	7.263283
Unrestricted SSR	85.73781	11	7.794346

Source: Author's calculation using Eviews 9.5

Figure 5 - Jarque-Bera test

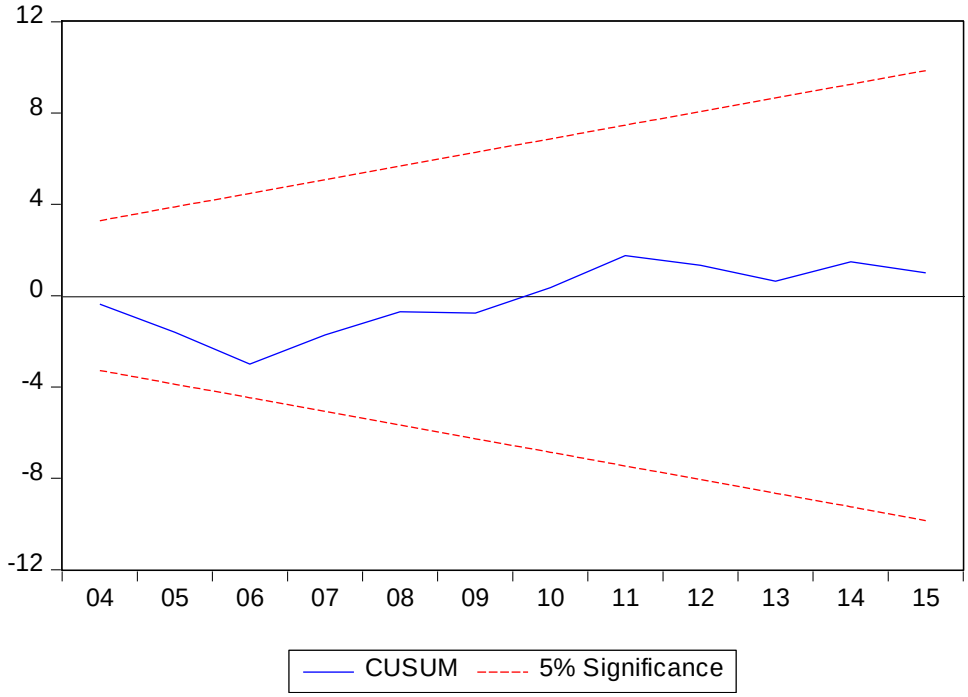


Source: retrieved from Eviews 9.5

In conclusion, it is evident from the diagnostic tests results that the ARDL model is free from serial correlation, heteroskedasticity, non-normality of the residuals and functional form errors.

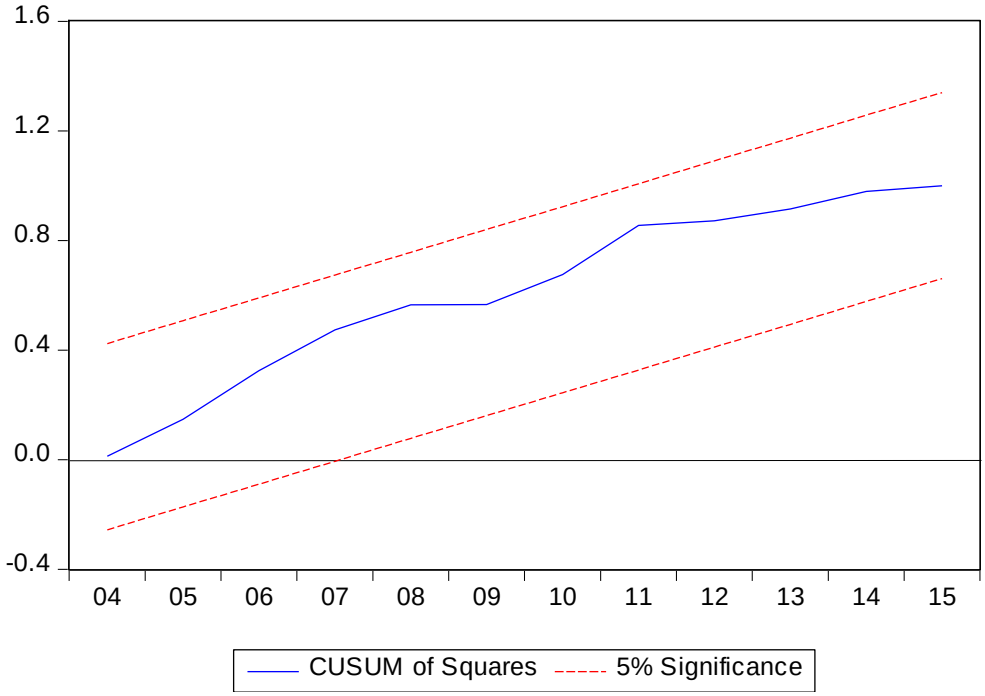
Therefore, in line with Pesaran and Pesaran (1997), the stability of the model was ascertained by the tests of Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ), based on the Cumulative Sum of Recursive Residuals and Cumulative Sum of Squares of Recursive Residuals respectively. As observed in figures 6 and 7, both plots lie within the 5% critical bound, suggesting that, the estimated coefficients of the model are stable for the period 1980-2015 at the 5% level of significance.

Figure 6 - Plot of CUSUM test



Source: retrieved from Eviews 9.5

Figure 7 - Plot of CUSUMSQ test



Source: retrieved from Eviews 9.5

3.3.8. Toda-Yamamoto Modified Wald Granger Causality Test

Following the determination of the order of integration and the maximum optimal lag selection, the residuals of the estimated model was confirmed to be serially independent because as shown in Table 18, we fail to reject the null hypothesis of no serial correlation at lags 1, 2, 3, and 4.

Table 18 - VAR Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h
Date: 06/02/17 Time: 15:58
Sample: 1980 2015
Included observations: 34

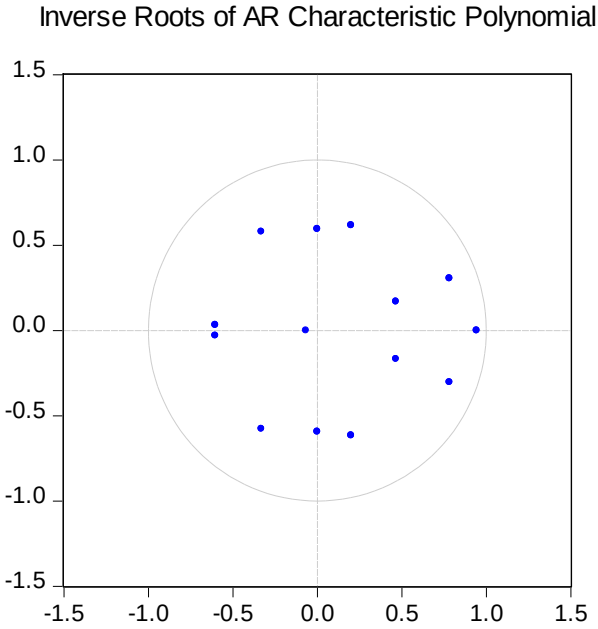
Lags	LM-Stat	Prob
1	60.41294	0.1271
2	56.26964	0.2214
3	52.36737	0.3447
4	46.82563	0.5617

Probs from chi-square with 49 df.

Source: Author's calculation using Eviews 9.5

Furthermore, it is evident from Figure 8 below that the VAR model is dynamically stable, because the inverse roots of AR are all inside the unit circle.

Figure 8 - VAR Stability test



Source: retrieved from Eviews 9.5

To further confirm the existence of a long run relationship between FDI and its determinants (though not a requirement of the Toda-Yamamoto procedure), we conducted the Johansen's Trace and Max Eigenvalue tests, whose test results depicted in table 19 indicates four and two cointegrating equations, respectively, at 5% level of significance.

Table 19 - Johansen Trace test and Max Eigenvalue test

Series: FDI GDPPC GFCF INF NAT OPEN CRED
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.887014	199.5269	125.6154	0.0000
At most 1 *	0.726900	127.5708	95.75366	0.0001
At most 2 *	0.596364	84.73959	69.81889	0.0020
At most 3 *	0.545992	54.80057	47.85613	0.0097
At most 4	0.408552	28.74246	29.79707	0.0658
At most 5	0.292034	11.41146	15.49471	0.1874
At most 6	0.000443	0.014606	3.841466	0.9036

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.887014	71.95612	46.23142	0.0000
At most 1 *	0.726900	42.83121	40.07757	0.0239
At most 2	0.596364	29.93902	33.87687	0.1375
At most 3	0.545992	26.05811	27.58434	0.0773
At most 4	0.408552	17.33100	21.13162	0.1570
At most 5	0.292034	11.39685	14.26460	0.1354
At most 6	0.000443	0.014606	3.841466	0.9036

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's calculation using Eviews 9.5

The results presented above indicate that the Trace and Max-Eigen statistic values of 199.5269 and 71.95612, respectively, are greater than the corresponding critical values of 125.6154 and 46.23142. As the probability values of these series are less than 5%, we therefore reject the null hypothesis of no cointegrating relationship for **None**, likewise,

the null hypothesis is rejected for **At most 1** in both tests and **At most 2** for Trace test at the 5% level of significance. On the other hand, we fail to reject this hypothesis for **At most 4 and At most 2** for the Trace and Max-Eigen tests, respectively.

The results of the Toda–Yamamoto Granger causality test are presented in table 20 below, from which we can conclude that there is an evidence of Granger causality. More specifically, a unidirectional causality going from INF to FDI, from CRED to FDI, from GFCF to GDPPC, from FDI to OPEN, from GFCF to OPEN, from NAT to OPEN and from CRED to OPEN at 5% (X^2 = 11.49469), 5% (X^2 = 35.37570), 5% (X^2 = 7.505018), 5% (X^2 = 18.41544), 5% (X^2= 29.91199), 5% (X^2 = 10.27656), 5% (X^2= 8.552230) respectively. As there was no evidence of any causality from other variables to GFCF, INF, NAT and CRED, we have excluded those results from the analysis.

Table 20 - Causality test results

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 06/11/17 Time: 15:52
Sample: 1980 2015
Included observations: 32

Dependent variable: FDI

Excluded	Chi-sq	df	Prob.
GDPPC	0.406030	3	0.9390
GFCF	4.133001	3	0.2475
INF	**11.49469**	**3**	**0.0093**
NAT	5.896977	3	0.1167
OPEN	2.206186	3	0.5307
CRED	**35.37570**	**3**	**0.0000**
All	165.5601	18	0.0000

Dependent variable: GDPPC

Excluded	Chi-sq	df	Prob.
FDI	0.433314	3	0.9333
GFCF	**7.505018**	**3**	**0.0574**
INF	2.126753	3	0.5465
NAT	2.556077	3	0.4652
OPEN	3.201728	3	0.3616
CRED	0.907021	3	0.8237
All	38.82669	18	0.0030

Dependent variable: OPEN

Excluded	Chi-sq	df	Prob.
FDI	**18.41544**	**3**	**0.0004**
GDPPC	1.388845	3	0.7082
GFCF	**29.91199**	**3**	**0.0000**
INF	1.884876	3	0.5966
NAT	**10.27656**	**3**	**0.0164**
CRED	**8.552230**	**3**	**0.0359**
All	101.2365	18	0.0000

Source: Author's calculation using Eviews 9.5

Conclusions

As mentioned in the introductory section, this study sought to examine the potential determinants of FDI in Sierra Leone, including the measures undertaken by the government to facilitate the attraction of foreign investment inflows into the country. With a view to achieve this goal, the study employs an annual time series data over the 1980- 2015 period. Furthermore, and in line with econometric theory, prior to estimating the model, the time series properties of the underlying variables (excluding the binary one) were examined by employing the Augmented Dickey Fuller and Philipps-Perron unit root tests to check the stationary of the variables. As the probability value of each of the series is zero, and both tests were conducted under first difference, we conclude that there is no unit root in first differences. Hence, each of the series must be either integrated of order zero, I(0) or one, I(1).

Following the unit root tests, and based on its outcome, the study employs the bounds testing (ARDL) technique to cointegration in order to examine the long run and short run relationships between FDI and the explanatory variables, because, it is the appropriate method when there is a mixture of I(0) and I(1) variables, but none is I(2). By employing this technique for the empirical analysis, the existence of a long run relationship was observed and, in addition, this relationship was further confirmed by the expected negative and significant effect of the error correction term with FDI.

We further note that private sector development has been a priority for the Sierra Leonean government. Consequently, with the purpose of improving the country's investment climate, several strategies have been adopted such as reviewing and updating the related laws or establishing incentives and guarantees for potential investors.

The results of our study support most of the empirical studies that were carried out, particularly the FDI literature on developing countries. Likewise, foreign investment activities in Sierra Leone is vertical in nature, or resource-seeking FDI. In what follows, and based on the results achieved, we present the main conclusions and respective policy implications which, if addressed, will also stimulate domestic investment in the short term, since the investors' decisions are to a large extent motivated by similar factors.

Starting by the significant relationship found between domestic credit to the private sector and the ratio of FDI inflows, it shows the relevance of financial sector development to attract foreign investment. As such, it is necessary to adopt financial sector reforms to stimulate as well as enhances the delivery of credit and its accessibility to this sector in order to facilitate investment and growth of the economy.

In this regard, the policies should include measures to increase access to finance for small and medium businesses by facilitating the establishment of financial institutions, particularly in the rural areas which have limited access to financial services. Likewise, reforms should be adopted in the private sector aimed at creating the enabling legal environment for effective allocation of credit, enforcing commercial contracts and strengthening creditors rights. Furthermore, based on its significant function in providing medium and long-term finance for investment, the operations of the Sierra Leone Stock Exchange should be improved. There is also the need to adopt more liberal policies that would facilitate investment, such as integrating the country's financial systems into the international markets, and to ensure long term finance to the private sector, the Sierra Leone government should also encourage the financial institutions to offer other form of services (substitute) to loans.

We also concluded in this study that there is a negative and significant correlation between inward FDI and the inflation rate. Considering that an increase is this last variable is associated with a similar movement in interest rate, the monetary authorities should implement measures aimed to combat high inflation given that high level of it tends to reduce aggregate demand and investment spending. In addition, the lending rate should be reduced in order to encourage inward FDI, because high level of it may increase the costs of borrowing and production, thereby reducing investment demand.

At the same time, the positive and significant effect of the lagged value on FDI highlights the relationship between the potential investors' knowledge of foreign market and the amount of resources they would be willing to invest there. Likewise, it suggests that foreign investors would be motivated to invest in a country in which there is a tradition of foreign investment activities, due to the limited information available about the locational advantages of the host country. Therefore, the presence of foreign investment in Sierra Leone nowadays has a tendency of attracting further investment in the future. In this regard, the government should not only formulate and implement

policies that would aimed at attracting foreign investors, but the measures should also seek to retain the existing investors in the country. As most of these investors are engaged in trading across borders, and accordingly to the international doing business rankings the positioning of Sierra Leone in this context is not positive, the measures adopted should also aimed at improving the country's performance on this area, which would eventually have a positive effect on the existing investors that are engaged in trading across borders.

Moreover, the evidence of a positive relationship between net FDI inflows and trade openness suggests that the motives for foreign investment activities in Sierra Leone have been export-oriented. Therefore, the national government should consider the possibility of providing investment opportunities to other foreign citizens, particularly in the services sector which at present is only open to citizens of West Africa (MRU and ECOWAS). In addition, the government should consider signing international investment treaties, particularly with the capital exporting countries, since Sierra Leone is lagging behind other countries in this area, and that would highlight the extent of the country's willingness to establish investment guarantees to the potential investors.

In turn, the evidence of a negative and statistically significant coefficient of the binary variable (Dummy) suggests that the civil war in Sierra Leone, between 1991 and 2002, had decreased the country's investment activities and growth prospects. So, the government should be committed to solving the root causes of the civil conflict, more specifically addressing issues such as bad governance, corruption, economic deprivation and exclusion. Considering that it was one of the causes of the war and the country's position on international rankings since 2010, we should point that scarce progresses have been made to fighting corruption. In this context, the government should focus on ensuring that the recommendations of the Auditor General's report are implemented, particularly the introduction of competition economics into the university curricula at the undergraduate and graduate levels. At the same time, to ensure a fair game for business activities in the country, it should be considered the setting up of a Competition Policy Authority, as this institution has a key role in fighting corruption. In addition, corruptive practices could be minimized if there is a collaboration or memorandum of understanding between the National Public Procurement Authority and Anti-Corruption Commission, especially with regards to policies in relation to designing of public contracts. As the

Sierra Leone government is in the process of modernizing its investment-related laws and regulations, it is quite important to ensure that afterwards they are applied equally to all.

Other relevant conclusion achieved is that foreign investors' decisions are also influenced by the availability of natural resources in Sierra Leone. Therefore, as a matter of policy to ensuring an effective system to managing the country's natural resources, the government needs to have a detailed inventory of them, and periodically conducts assessment with a view to determining the level of misuse of those resources. Furthermore, natural resources management, which at this moment is not offered by any of the universities in Sierra Leone, should be introduced as an academic discipline to understand the importance and find solutions for conserving the country's natural resources. Measures should also be taken into consideration to preventing the issue of tax evasion by foreign investors, and further ensures a proper management of revenue received from natural resources. Data about this economy has also revealed that the marine sector contributes about ten percent to the country's gross domestic product, but however it is our belief that, given the sector's enormous potentials, if an adequate policy is developed, backed by a legal mandate that would describe and guide its operations, that contributions to the country's development goals could be strongly improved.

Another key motivation for foreign investment in Sierra Leone is the country's infrastructure level, because the short run model indicates that lagged one and lagged two of gross fixed capital formation as percent of GDP was positively and significantly correlated with inward FDI. Thus, this suggests that the government should undertake significant investments in infrastructural development, and more specifically on physical and financial infrastructure, especially in terms of landline telecommunications infrastructure, electricity generation and distribution, and paved road network in the country.

Finally, the positive but insignificant association between GDP per capita growth rate and inward FDI indicates that the size of the Sierra Leonean market to some extent influences foreign investment, nevertheless it is not a significant attraction factor of FDI. This further suggests that, based on the estimated coefficients for natural resources endowment and trade openness of the economy, the type of foreign investment attracted to Sierra Leone is obviously resource seeking FDI (and not market seeking).

In conclusion, we can say that the present research was limited by the unavailability of data about some potential determinants of FDI, like for instance factors to evaluate the quality of governance and country's institutions (such as corruption) or the human capital endowment, that therefore were not be factored into the regression analysis. Another relevant constraint to our study was the absence of data about the number of foreign investors and the sectoral distribution of FDI in Sierra Leone, thereby limiting the analysis per sector of economic activity.

In the future, if these data are available, there is scope for a more complete research, incorporating both quantitative and qualitative factors that would assess the role of foreign direct investment to the country's economic development as well as per the various sectors (services, mining, agriculture). Furthermore, in addition to economic factors, there is also room for examining the influence of governance and institutional variables in this matter.

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Appendices

Appendix 1: Descriptive statistics and correlation matrix

Date: 05/29/17
Time: 23:36
Sample: 1980 2015

	FDI	GDPPC	GFCF	INF	NAT	OPEN	CRED	DUM
Mean	2.796252	0.169556	11.61186	32.95732	14.28854	50.26991	4.337114	0.333333
Median	0.875811	1.918375	10.67944	19.42232	12.11972	46.26347	3.506038	0.000000
Maximum	32.30119	20.50200	41.53801	178.7003	34.60040	93.27412	8.105303	1.000000
Minimum	-28.62426	-22.29130	-2.424358	-35.83668	8.122800	23.02986	1.620262	0.000000
Std. Dev.	8.531487	8.101439	7.837023	39.89196	5.852258	17.27254	1.931983	0.478091
Skewness	-0.013437	-0.279782	1.814503	1.667305	1.562621	0.786716	0.690851	0.707107
Kurtosis	10.07992	4.860641	8.072786	6.439351	5.358038	3.030895	2.207821	1.500000
Jarque-Bera	75.18888	5.662644	58.35427	34.42314	22.99122	3.714968	3.804975	6.375000
Probability	0.000000	0.058935	0.000000	0.000000	0.000010	0.156065	0.149197	0.041275
Sum	100.6651	6.104014	418.0270	1186.463	514.3874	1809.717	156.1361	12.00000
Sum Sq. Dev.	2547.519	2297.166	2149.663	55697.91	1198.712	10441.92	130.6396	8.000000
Observations	36	36	36	36	36	36	36	36

Correlation	FDI	GDPPC	GFCF	INF	NAT	OPEN	CRED	DUM
FDI	1.000000							
GDPPC	0.185294	1.000000						
GFCF	0.625784	0.239161	1.000000					
INF	-0.238773	-0.141755	-0.081487	1.000000				
NAT	0.112530	0.100390	0.022931	0.059262	1.000000			
OPEN	0.630156	0.232914	0.539305	-0.067155	0.569769	1.000000		
CRED	0.240820	0.119971	0.618683	-0.148396	-0.018429	0.252567	1.000000	
DUM	-0.179343	-0.136730	-0.457384	-0.073748	-0.016716	-0.160375	-0.616562	1.000000

Source: Author's calculation using Eviews 9.5

Appendix 2: Auxiliary regression results of Breusch-Godfrey Serial Correlation LM Test

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 05/30/17 Time: 00:22
Sample: 1983 2015
Included observations: 33
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI(-1)	-0.103207	0.272303	-0.379016	0.7177
FDI(-2)	0.023336	0.150366	0.155197	0.8818
GDPPC	0.048010	0.082082	0.584903	0.5799
GFCF	-0.000320	0.208347	-0.001534	0.9988
GFCF(-1)	0.111835	0.142345	0.785661	0.4620
GFCF(-2)	0.051905	0.187150	0.277347	0.7908
GFCF(-3)	-0.142856	0.208665	-0.684621	0.5191
INF	-0.007091	0.038040	-0.186420	0.8583
INF(-1)	-0.023533	0.030724	-0.765946	0.4728
INF(-2)	0.001513	0.023002	0.065794	0.9497
INF(-3)	0.020791	0.028963	0.717842	0.4998
NAT	0.032031	0.204551	0.156592	0.8807
OPEN	-0.070546	0.084366	-0.836189	0.4351
OPEN(-1)	0.065770	0.134740	0.488125	0.6428
OPEN(-2)	-0.006558	0.075929	-0.086373	0.9340
CRED	-0.392810	0.870774	-0.451104	0.6678
CRED(-1)	-0.104996	0.676595	-0.155183	0.8818
CRED(-2)	0.564221	0.786750	0.717154	0.5002
CRED(-3)	-0.037000	0.959372	-0.038567	0.9705
DUM	-0.414906	1.910634	-0.217156	0.8353
C	0.374036	2.506181	0.149245	0.8863
RESID(-1)	-0.570108	0.384850	-1.481375	0.1890
RESID(-2)	-1.033080	0.592638	-1.743191	0.1319
RESID(-3)	-0.657568	1.211085	-0.542958	0.6067
RESID(-4)	-1.248665	1.529032	-0.816637	0.4453
RESID(-5)	-1.282682	1.167360	-1.098789	0.3140
RESID(-6)	-0.997487	0.814907	-1.224051	0.2668

R-squared	0.775666	Mean dependent var	7.00E-16
Adjusted R-squared	-0.196447	S.D. dependent var	1.650373
S.E. of regression	1.805215	Akaike info criterion	3.950852
Sum squared resid	19.55281	Schwarz criterion	5.175267
Log likelihood	-38.18906	Hannan-Quinn criter.	4.362830
F-statistic	0.797917	Durbin-Watson stat	1.898650
Prob(F-statistic)	0.687402		

Source: Author's calculation using Eviews 9.5

Appendix 3: Auxiliary regression results of Heteroskedasticity Test: Breusch-Pagan-Godfrey

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/30/17 Time: 00:23
Sample: 1983 2015
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.90746	6.570033	2.269008	0.0425
FDI(-1)	0.172278	0.299887	0.574475	0.5763
FDI(-2)	0.160260	0.281528	0.569251	0.5797
GDPPC	-0.096479	0.185599	-0.519826	0.6126
GFCF	-0.157612	0.250431	-0.629360	0.5409
GFCF(-1)	0.345070	0.260918	1.322524	0.2106
GFCF(-2)	0.085295	0.361258	0.236106	0.8173
GFCF(-3)	0.292046	0.339394	0.860493	0.4064
INF	0.030042	0.055790	0.538480	0.6001
INF(-1)	0.002448	0.054901	0.044587	0.9652
INF(-2)	-0.018682	0.047768	-0.391098	0.7026
INF(-3)	-0.005727	0.041294	-0.138701	0.8920
NAT	-0.176274	0.407547	-0.432524	0.6730
OPEN	-0.039746	0.135503	-0.293324	0.7743
OPEN(-1)	-0.123173	0.173052	-0.711770	0.4902
OPEN(-2)	-0.009719	0.121189	-0.080195	0.9374
CRED	0.898650	1.267887	0.708777	0.4920
CRED(-1)	-0.899806	1.599291	-0.562628	0.5840
CRED(-2)	-0.750998	1.872263	-0.401118	0.6954
CRED(-3)	-1.326776	1.374252	-0.965453	0.3534
DUM	0.620532	4.549020	0.136410	0.8938

R-squared	0.460145	Mean dependent var	2.641194
Adjusted R-squared	-0.439612	S.D. dependent var	4.289002
S.E. of regression	5.146109	Akaike info criterion	6.375485
Sum squared resid	317.7893	Schwarz criterion	7.327808
Log likelihood	-84.19551	Hannan-Quinn criter.	6.695913
F-statistic	0.511410	Durbin-Watson stat	2.307992
Prob(F-statistic)	0.910815		

Source: Author's calculation using Eviews 9.5

Appendix 4: Auxiliary regression results of Ramsey RESET Test

Unrestricted Test Equation:
Dependent Variable: FDI
Method: ARDL
Date: 05/30/17 Time: 00:50
Sample: 1983 2015
Included observations: 33
Maximum dependent lags: 3 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (3 lags, automatic):
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FDI(-1)	-0.197382	0.172951	-1.141260	0.2780
FDI(-2)	-0.242798	0.154529	-1.571214	0.1444
GDPPC	0.100014	0.101704	0.983378	0.3466
GFCF	-0.097743	0.204592	-0.477746	0.6422
GFCF(-1)	0.167376	0.175207	0.955303	0.3599
GFCF(-2)	-0.925822	0.202442	-4.573263	0.0008
GFCF(-3)	-0.308634	0.191134	-1.614751	0.1347
INF	-0.060972	0.031932	-1.909466	0.0826
INF(-1)	-0.096501	0.029975	-3.219353	0.0082
INF(-2)	0.122902	0.026641	4.613184	0.0007
INF(-3)	-0.107035	0.022413	-4.775552	0.0006
NAT	0.582883	0.271670	2.145556	0.0551
OPEN	0.227221	0.073614	3.086645	0.0103
OPEN(-1)	0.122624	0.097331	1.259871	0.2338
OPEN(-2)	0.181050	0.075982	2.382786	0.0363
CRED	-3.272742	0.751387	-4.355600	0.0011
CRED(-1)	4.568940	1.043541	4.378305	0.0011
CRED(-2)	3.475443	1.020210	3.406597	0.0059
CRED(-3)	-2.896165	0.770170	-3.760425	0.0032
DUM	-8.284797	2.573342	-3.219470	0.0082
C	-16.76524	3.777214	-4.438519	0.0010
FITTED^2	-0.002862	0.006702	-0.427068	0.6776

R-squared	0.965902	Mean dependent var	3.070502
Adjusted R-squared	0.900805	S.D. dependent var	8.864289
S.E. of regression	2.791836	Akaike info criterion	5.125997
Sum squared resid	85.73781	Schwarz criterion	6.123668
Log likelihood	-62.57895	Hannan-Quinn criter.	5.461683
F-statistic	14.83787	Durbin-Watson stat	2.498971
Prob(F-statistic)	0.000026		

*Note: p-values and any subsequent tests do not account for model selection.

Source: Author's calculation using Eviews 9.5